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Capitol Park, Harrisburg, Pa.

Arnold W. Brunner, Architect

EAST VIEW OF CAPITOL
HARRISBURG PA.
SHOWING TERRACES AND OFFICE BUILDINGS

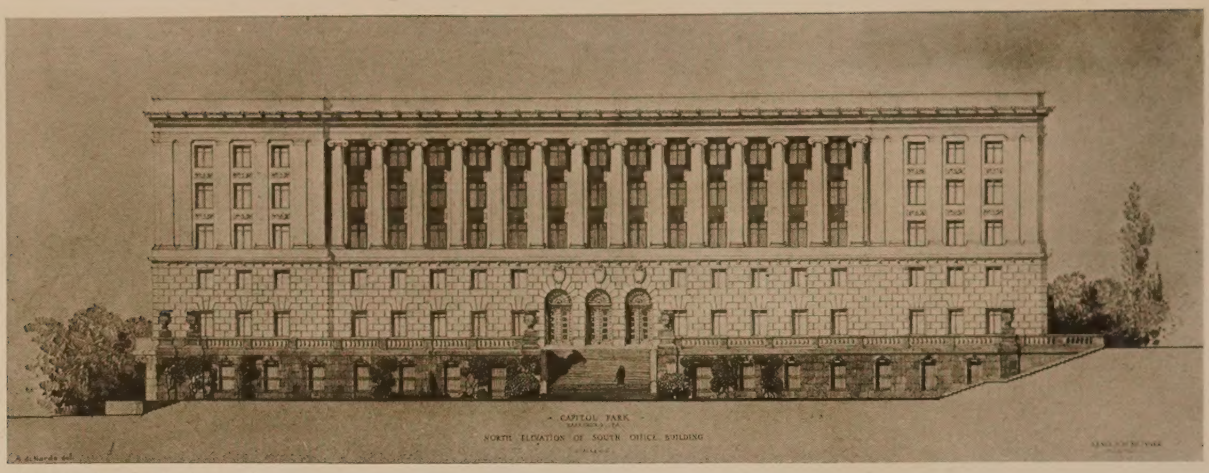
THE determination to make our capital cities notable and dignified is unfortunately not a nation-wide characteristic, which is a pity, for with half the public spirit of ancient Athens any one of them could achieve wonders.

Nowhere has there been evinced a greater harmony of ideals of city and State than in this great Commonwealth of Pennsylvania. The city of Harrisburg is exceptional. It has shown the most admirable public spirit. Its parks, water-front, and other manifestations of civic pride are well known, and when the enlargement of Capitol Park was determined on and twenty-eight acres were added to it (making it forty-three in all) it was always with a desire to have the city share in the benefit of the new improvements.

Accordingly, in designing the group of buildings, which, in connection with the Capitol will be required to house the growing activities of the State, care has been taken to make their street façades and attendant landscaping present an attractive appearance to the city on all sides.

Little thought had been given to the eastern front of the Capitol, facing as it did a neglected neighborhood of mean streets, but in the new order of things what had formerly been its back door will now become the garden front. It will face a wide terrace surrounding three sides of a forecourt 500 feet wide. This will be paved with marble, fringed with foliage, and will contain two monumental fountains. On the north and south terraces are to be placed buildings

East view of Capitol as it looked three years ago.



North elevation of south office-building.

so designed that they will be practically detached wings of the Capitol, and which with their connecting terraces will contain over 450,000 square feet of office space, a fair provision for future growth. Farther to the east are two other buildings, one to contain the laboratories of the various State departments, and the other for the use of the educational division.

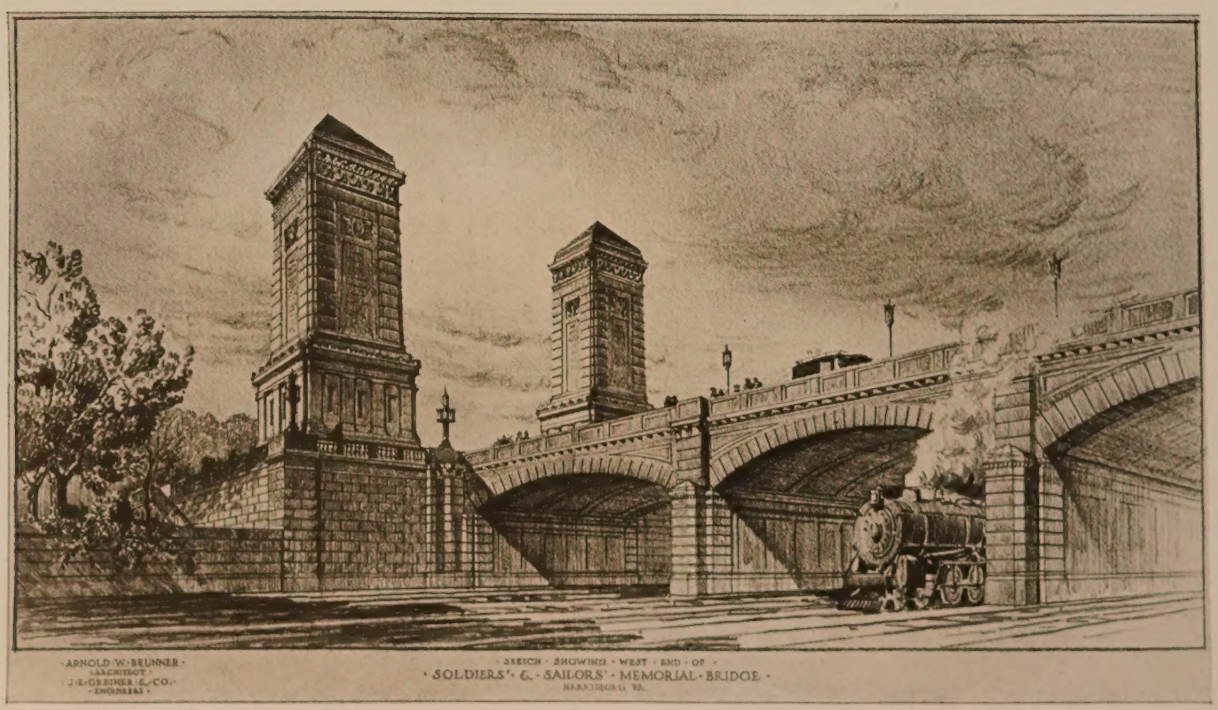
The space between these buildings is so divided that the broad tapis vert in the middle is bordered on each side by four rows of trees. They terminate in a formal plaza which connects the streets that bound the park and forms the approach to the Memorial Bridge.

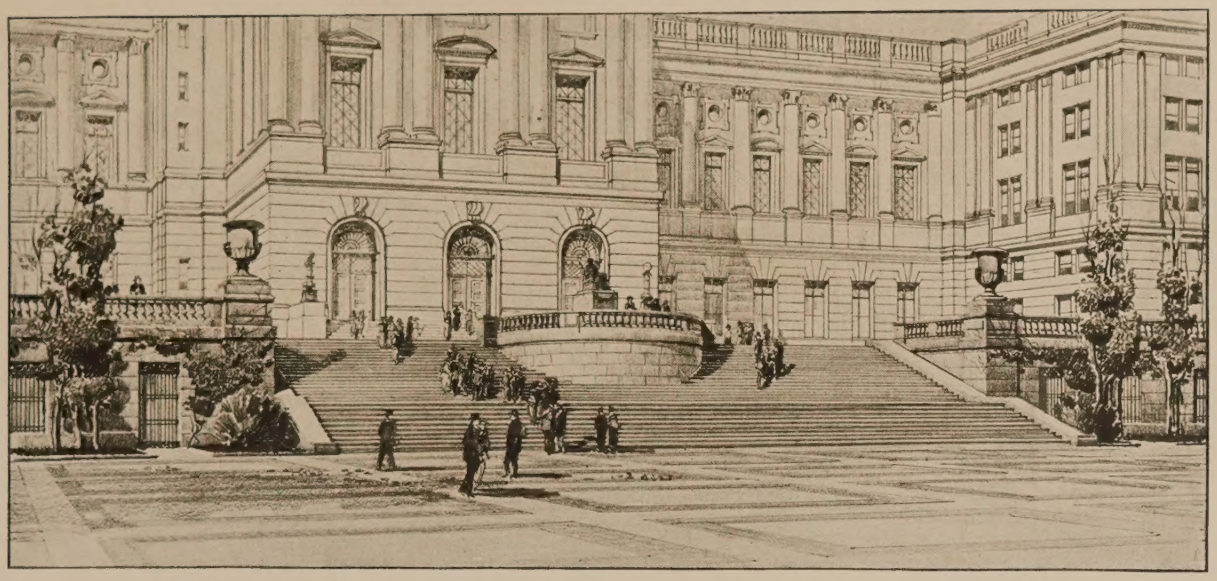
Under the wise guidance and with the unfailing support of the Board of Public Grounds and Buildings, composed of Governor Sproul, General Charles A. Snyder, and Mr. Harmon M. Kephart, it has been decided to make all the new buildings of an architectural character which, while harmonizing with the Capitol, will by their simplicity emphasize it and lead up to its graceful dome as the centre of the composition. The fine majesty of simple things appeals to the board and I cannot be too grateful for their constant encouragement.

It requires but little imagination to visualize the broad forecourt thronged with people, some on the upper terraces looking down on the splashing fountains, or perhaps all assembled to celebrate a special festival or national event. I believe that this will truly become a public forum.

The dominant idea in the design of the Capitol Park has been to make it not only stately and beautiful, but useful for the people. Under the great rows of trees which in time will meet overhead, and provide grateful shade, will be gravel walks, seats, and small fountains—real playgrounds for the children and for us grown-ups.

The inspiration of the French palaces and gardens —those wondrous pleasure-houses for kings—has been sought, their graceful design reverently studied, their successful treatment and combination of formal and informal landscaping, but always with the endeavor to





Main steps from forecourt to east entrance of Capitol.

adapt their beautiful forms to the wants of the American public.

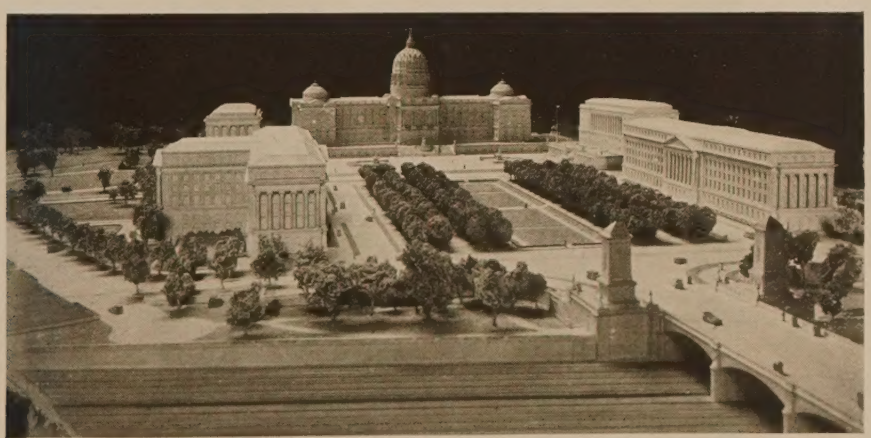
Here are places set aside for statues so that our distinguished men may be properly honored. Too often we find our bronze heroes tucked away in odd corners and left to the birds and the dust.

The bridge is to be a memorial to the soldiers and sailors of Pennsylvania who took part in the great war, and accordingly the two pylons which mark its approach are symbolic, one of the army and one of the navy, and they are to contain vaulted marble chambers in which will be inscribed the names of these gallant men.

Built of enduring granite the bridge will span the railroad-tracks, cross the valley, and reach the summit of a hill exactly half a mile away. It will be treated monumentally in the same spirit as the Capitol group and will virtually form an extension of State Street one and one-half miles long from the great eastern approach of the Capitol to the banks of the Susquehanna River.

Harrisburg, wishing to mark the city terminus of the Memorial Bridge, in other words, to receive it with some appreciation, has determined to erect at this spot a monument in memory of her soldiers and sailors. This memorial will consist of a simple curved seat on a raised platform at one end of a formal garden. The central feature silhouetted against the morning sky will be a flagpole with a richly ornamented bronze base. From this high point will float the American flag. Long after these days of stress and strain, of trouble and conflict, it will stand as a lasting memorial to the stability of our ideals—our government—our country.

The two office-buildings have each approximately a ground area of 90 x 300 feet. The forecourt bordered by the Capitol terraces is 300 x 500 feet. The educational building and laboratory building are each 80 x 440 feet, the former having a projecting wing containing a large auditorium. The design, which includes the formal rows of trees bordering a sunken lawn 500 feet in length, also includes a certain amount of informal landscaping and to a certain extent continues the treatment of the small piece of ground now known as Capitol Park.



Photograph of model, Capitol Park, Harrisburg, Pa.

Sculpture in Landscape Architecture

Illustrations from "The Gardens of Italy," edited by Arthur T. Bolton (see page 138), and the author's photographs

By Fletcher Steele

SCULPTURE has been the decoration par excellence of landscape architecture since the earliest times.

In Egypt the glaring avenue of sphinxes connecting the temples of Luxor and Karnak rivalled the mysterious immensities of the dark temples themselves. The Acropolis at Athens was arranged to give far view of the Athene Promachos. The groves where Plato walked and the mystic grottos of the oracles were peopled with statues gleaming through the shadow.

Villa Balbianello, Lake Como. F. S.

Rome and all her civilization was crowded with sculpture. From the remains at Pompeii we can reconstruct the private gardens of the imperial age. Statues everywhere personified the gods, the legends, and the household traditions. They were used to mark the axes, to fill in the interspacing of colonnades, to mark the portals and the accent in hedges and gardens. In strength of mass, marked light and shade, and lively silhouette, ancient sculpture proves that it was not the work of the studio, but designed largely out-of-doors, where these qualities are of fundamental importance.

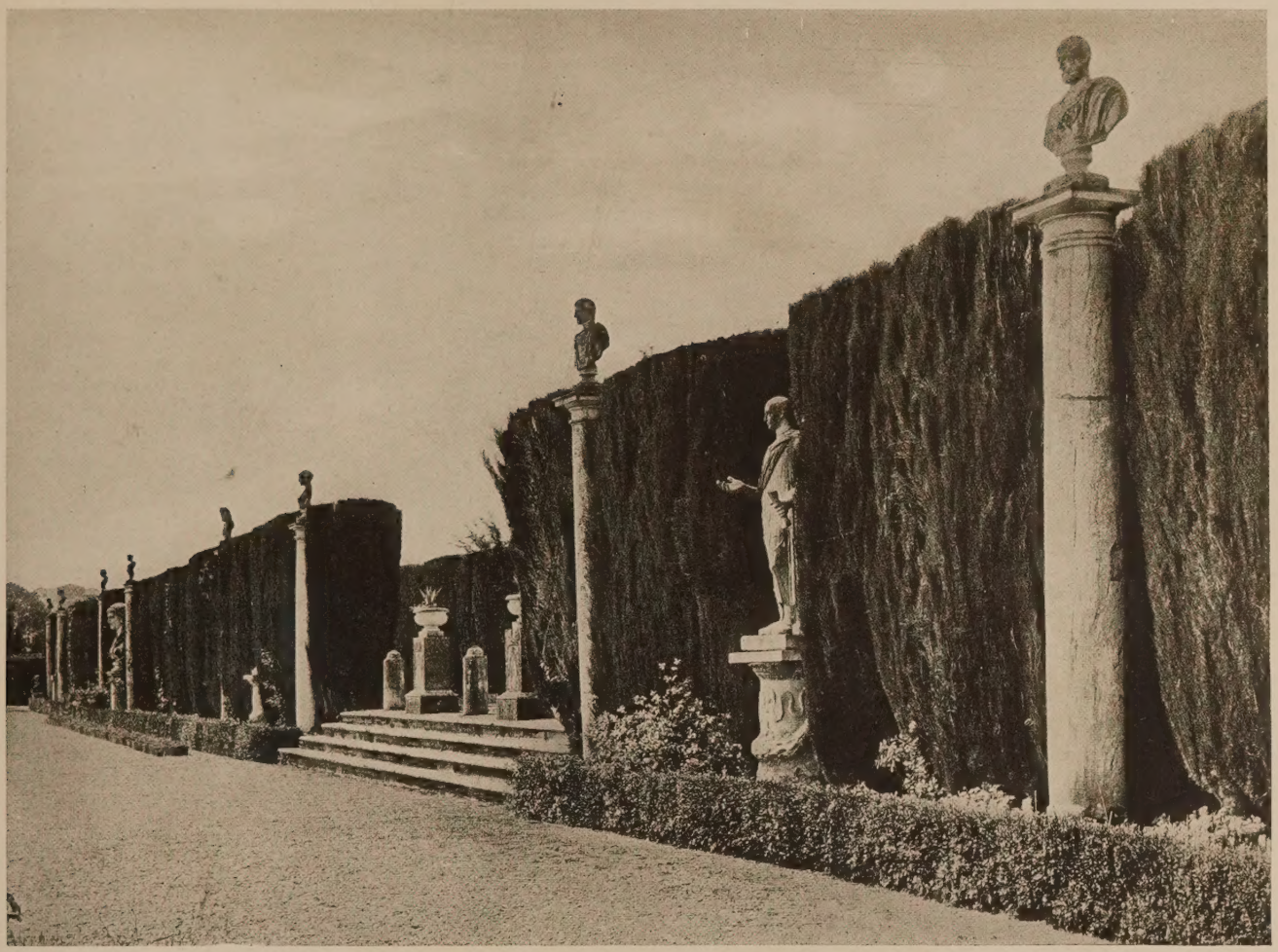
Fifteenth-century study of the pagan world resulted in the supreme period of garden-building in Italy. Underlying conditions of geography and climate were identical with those of ancient Rome. The apparatus of horticulture was very little changed. Italy is a dry country and has no such variety of plant life as is found farther north in Europe. For the most part the Italian gardener relied on the ilex, the cypress, the sycamore tree, with boxwood, laurel, orange, and lemon for lower growth. Each forms a dense mat of flat rich color and casts dark, definite shadows. The Italian has never been absorbed in variety of horticultural effects. He has treated plant life as an almost architectural material, offering bold forms, masses of simple green, and marked light and shade. He has been concerned in adapting the irregular topography, largely by means of architectural devices, to the use and enjoyment of his peculiar civilization.

In the early, simple days, walls, terraces, and steps (which have been inevitable throughout the agricultural history of Italy) were left without ornamentation. With the revival of interest in Roman sculpture and the flowering of the new architecture came the embellishment of the gardens. Carved antique fragments were gathered together and arrayed on balustrades, walls, in grottos and niches, wherever place could be found. But an innate sense of design directed that the sculpture could best be displayed through its incorporation in the architectural background. Good taste required that the decorative detail, which it thus became, should be subordinated to the impression of the whole.

The Villa Albani is the best existing example of an Italian garden designed properly to exhibit a collection of sculpture. To be sure, it was built late, but it displays very well the principles which did not change. On the southwest side is a detail which illustrated the use of plants for walls and the application of sculptured ornament. A long line of columns is backed by a cypress hedge, which is kept carefully clipped to the height of the abacus. A row of busts surmounting the columns stands boldly against the sky, accenting the hedge mass at regular intervals. Here and there a statue in line with the columns, between which it is placed, occupies a recess in the green, which serves to throw into sharp relief every detail of the sculpture. In order to leave no loose edges, hedge and sculpture are separated from a broad walk by a low-clipped box edging. A few plants fill in the narrow border and at various times during the year a touch of brilliant color is introduced by flowering plants in pots. The free-growing roses and vines soften the stiff architectural lines and masses of hedge and column. Horticulture is distinctly subordinate, but it is indispensable. An admirable effect is produced with the utmost restraint in the use of material.

Villa D'Este. The Fountain of the Dragons, on the main axis of the gardens.

The taste for sculpture in gardens, which was created by the use of antique fragments, could by no means be satisfied with the limited material provided by excavation. As the gardens multiplied, it was necessary to find modern carving for their embellish-



The cypress hedge, Villa Albani, Rome.

ment. Great sculptors were not averse to turning their hand to garden ornaments, as witness Gian Bologna's fountain on the little island of the Boboli Gardens and the fountain at Petraja by Il Tribolo. The occasional masterpieces were, however, exceptions to the general rule.

Possibly because the quantity of statues and sculptured ornament necessary was far beyond the productive powers of the great artists, probably because the cost of fine work would have been prohibitive, but little of the great volume of Italian garden sculpture was beautiful in detail. Much of it is downright ugly. It was vulgar in conception, crude in execution, and a caricature of man and beast in many instances. Men's muscles bulged like water-blisters, women's drapery seems blown by a high wind. All was exuberant, ridiculous, yet strangely satisfying.

The upper garden of the Villa Farnese at Caprarola offers a typical illustration. A broad terrace laid out in parterres is enclosed by a retaining wall from which rises a series of gigantic Hermes, each supporting a huge flower-pot, nonchalant as if it were the latest fashion in top hats. At the corners they are seemingly busy in conversation. Others have the expression of society on parade. They are amusing, but without exception they are gross in idea and execution. On either side of the steps leading down from this terrace are fat stone horses which have all the appearance of being rags and sawdust for children's playthings. The fountain, which breaks out from the terrace wall, is flanked by huge stone giants so badly out of drawing that one would expect better things from a first-year art student. Nevertheless, the whole is replete with charm and gayety. It has all the virtues and faults of a stage-setting, frozen into stone.

Recumbent giants, modelled with brutal coarseness in stone, were a favorite subject of Italian gardens. It can be safely stated that they are always good ornaments and bad sculpture. Famous examples are to be seen lounging against the stairs of the Senate in the Campidoglio at Rome, or built into the retaining wall leading up to the bosquet at the Villa Lante. They are incorporated into the architecture, and, while it would be far-fetched to state that they were consciously used to reinforce the strength of retaining walls, it is nevertheless true that they commonly serve just such a function. But their grossness is not peculiar to them. It is a common quality of all garden sculpture of the period.

As if grossness and bad drawing were not enough, we find exaggerated posture and extravagant detail. Arms and legs are flung about recklessly. Draperies, fruit, dogs, poles, lumps of hair, etc., were used profusely. There is confusion and awkwardness in consequence. On the other hand, there is conspicuous play of light and shadow which tells at a distance from which the details sink into insignificance. Moreover, such treatment adds notably to the vivacity of silhouette.

The Italians continually played with their sculpture

to get interesting effects with silhouettes. They had a pretty trick of using sky, sea, or distance as a background. Examples are to be found in almost any garden, such as the Villa Falconieri (Frascati), Villa Palmieri, near Florence, Villa Balbianello and Isola Bella of the Italian lakes. In such a position it was obvious that the chief value of the sculpture lay in its interesting outline, as any object ordinarily looks flat and black against the light. Recognition of this fact came to a logical conclusion in the sculptured fountain of the courtyard in the Palazzo del Commune at Viterbo. The fountain was placed next the outer balustrade, which was at the top of a steep descent. The rampant lions, which form the chief decoration, are seen only against the sky from one angle. They are cut out flat, with only the slightest bas-relief modelling on the inner side. They depend entirely on their silhouette for their interest.

West side of the parterre of the Casino at Caprarola.

There would be no end to the enumeration of the individual demerits of Italian garden sculpture. The climax was probably reached in the cascade at the Villa Garzoni. All the sculpture is annually whitewashed to force the contrast. Two enormous female giants facing each other (thus reversing the usual positions) are surprised by a third lady some fifteen feet high, playfully fluttering down with the apparent object of squirting water on her neighbors. Lower down four gigantic buzzards, preposterously ugly, are scrambling around the artificial rock work. Here, if anywhere, the sense of play overstepped itself. After the first gasp of astonishment, it would be difficult to imagine any pleasant sensation they could stimulate. And this can be attributed to the fact that they are quite without any marked architectural relationship with wall or platform. The birds in the Fountain of the Dragons at the Villa d'Este, Tivoli, are not less extravagant in themselves. But, owing to careful grouping around the great central water-jet, they serve an architectural purpose and satisfy the eye.

What conclusions can we draw from the qualities of Italian Renaissance garden sculpture? Manifestly its faults did not belong to all the sculpture of the period. More noble ideas were never conceived nor was work ever more delicately executed than by the sculptors of the Italian Renaissance for the embellishment of architectural interiors. We must conclude that the triviality of idea was intentional, and the faults, if not encouraged, were forgotten in insistence on the decorative qualities; furthermore, that these decorative qualities depend on elements which are not necessarily required for sculpture ornamenting architectural interiors. "There is such a thing as deliberate ugliness: or, rather, a great designer will deliberately forego accepted forms of beauty in order to drive home other effects which are more important for his purpose" (Sir Reginald Blomfield).

Sculpture in Italian gardens is one of its chief charms. It is designed carefully to emphasize the architecture of which it often forms a part. It is effective when seen from a distance, whether considered as harmonizing and enriching the structure or in contrast with the strong green of tree or shadow behind it, against sea or sky. It is strong, even coarse in mass; it has vigorous light and shadow, a marked and generally crisp silhouette and color which is like the architectural detail and in contrast with the background. It has exaggerations which are toned down by distance and the large scale of nature.

The Renaissance in France did not come as a revival under local conditions identical with the past. France did not have its abundant relics of Roman schemes, its poverty of horticultural background and arid climate, its sudden irregularity of topography, and its myriad fragments of ancient carving. There was a chasm between the civilization of Rome and that of the French Renaissance. While France had a superb tradition in sculptural ornament, inherited from the Gothic builders, sculpture was not a natural embellishment of French gardens. In the illustrations of the Grimani Breviary, of "The Romaunt of the Rose," in the British Museum, and of other mediæval illustrations of contemporaneous gardens, the only carving is found on the simple fountains. The garden architecture, where it was not a sternly undecorated part of the larger fortifications in which the garden was set, consisted of wood trellis and fence, straightforward pool or brick garden-seat, none of which showed any ambitious attempt at ornament.

Moreover, the earliest records show a greater interest in horticulture for its own sake. The climate was better fitted to the easy cultivation of the wide range of plant life naturally found in France. An impetus was given the development of horticulture when the French Crusaders brought back seeds and cuttings from the Near East. And history shows everywhere that a strong interest in horticulture means a corresponding lack of concern for the architectural elements of garden design. When the French began to build great châteaux and huge formal parterres, laid out in colored stones and sand, surrounded and crossed by clipped tunnels, and walls of foliage, horticulture was more or less forgotten in the new passion for ostentation and pageantry, but it continued to play a greater part than was ever the case in Italy.

The fountain below the parterre of the Casino at Caprarola.

For the most part the ground was flat or only slightly undulating. Parterres were laid out on formal lines in intricate patterns. Substantial walls of great length became one of the conspicuous features of French garden design. The mediæval courtyard fountain was glorified and became the central feature of early French parterres. One looks in vain, however, to find examples of the common use of garden sculpture in the early Renaissance. Formally clipped bushes and trees were employed to mark salient points of the design, where in Italian parterres the points of emphasis would be made with sculpture.

Toward the end of the first period of the French Renaissance, sculpture began to play a strong part in the embellishment of buildings, and soon thereafter in garden walls. The walls of the great court at Château Richelieu and the retaining wall of the parterre of the ducs de Lorraine at Nancy are in point. But it would appear that a large use of sculpture in gardens was the innovation of Le Nôtre. In all his later designs sculpture played an important part, culminating in his great achievement at Versailles. It is at Versailles that one can best study the French use of garden sculpture.

The architectural feeling of French gardens lay in their grandiose symmetrical design rather than in the architectural embellishment, important as that is. The walls were considerable in themselves, but they did not assume the dominant place that they occupied in the gardens of Italy. While sculpture was used in some profusion with walls, the result was more to enrich the architectural detail than to decorate the garden as a whole. The effect of sculpture was more considerable where used in connection with water-basins and fountains. In this case each unit was conspicuously isolated and the sculptured groups were well arranged. Le Nôtre materially enriched the general effect when he placed series of great marble vases and statues against a clipped background of tall trees, following an inspiration which may well have come from Italy. The difference in national treatment lies in the much larger proportionate importance of massive foliage and flat lawns in France.

Except for the adaptation of sculpture to much larger elements of design, no new principle was established, although sculpture may be said to have lost its place as part of the structure to become merely ornament. In two ways, however, Le Nôtre did use sculpture in a new fashion. He commonly made a statue the terminus of long paths through the forest which were without architectural character beyond the fact that they were straight; and he took occasion to break the monotonous sky-line of his flat parterres by putting isolated statues at important places in the beds and lawns.

It would appear that Le Nôtre thoroughly understood the necessary qualities of out-of-door sculpture. For the

St. Peter s from the carriage-drive.

most part what was done under his oversight was fairly strong in massing, and had vigorous lights and shadows. Harmony and contrast of color were well treated. Bronze groups around the basins in the upper terrace at Versailles between the sky-blue sheets of water and immense paths of light-colored sand, stood out as sharply as spots of ink on white paper. Statues harmonize in color with the walls they decorate. Where they are to be seen against a background of foliage they are white. Where bronze was used on green lawns or against green backgrounds, he isolated the sculpture in each case by a strongly marked architectural setting.

While, because of the magnitude of French gardens, sculpture did not take the important place that it assumed in Italy, inversely each statue, standing almost alone, became of more interest as a detail. Le Nôtre understood this and as a result the sculpture of his gardens had an elegance and finish that have never been excelled. In Italy the general standard was never approached. Each group is a masterpiece fit for the garden of Le Roi Soleil.

Sophistication was necessary to this result. Everything was in good scale. There were no recumbent giants in France. On the other hand, the sculpture lost in spontaneity and gayety all that it gained in correctness. There was no joking, no personal vulgarity in the great French gardens —all was impersonal and serene. The sculpture had all the qualities of the place. It was effective, beautiful, and cold.

England is the true home of horticulture. It has a great variety of plant life and an ideal climate for luxuriant growth. While her people have long understood how to build stately, architecture and the fine arts have never been the chief preoccupation of English people. Sculpture has been almost conspicuous by its absence from the public mind. Most of the good sculpture which has been put up during the last few hundred years has been imposed from above. As far back as the time of Henry VIII, the king imported sculptors from Italy. This was done in France, too, but there the people were able to continue the cunning taught by Italy. In England this does not appear to have been the case. While noble monuments have been erected by Englishmen, they appear to have been more the result of serious thought and hard work than superabundant facility in design.

Terraces and walls were commonly used in Renaissance English gardens with great ingenuity and charm, but where in Italy they would have been surmounted with carved balustrades and fantastic statues, in England they were crowned with strange designs in strap work or biblical quotations carved in huge letters. In place of the statues they built endless stone balls, pinnacles, and other geometric contrivances.

The gardens had their parterres, their tunnels through horn beam, and their trellises, as well as their walls; but while the Italians and the French were contented with designs in colored glass and sand, outlined with clipped box edging, the English protested against such absurdities as early as the sixteenth century. Their parterres were planted with varieties of trees, shrubs, and plants. Where the French used potted orange and lemon trees and geometrically clipped shrubs to emphasize important lines and spots of the garden design as the Italians used sculpture, the English went much farther than the French. They made whole gardens of strangely sculptured bushes and trees. Both in the gardens and as a background a world of living plants in luxuriant variety and color subordinated all other decoration to itself.

Englishmen were always travellers, however, and they were charmed with what they saw in France and Italy. They brought back with them ideas for many a so-called Italian house and garden in the British Isles. What is more, they imported quantities of sculpture and decorative material for these same gardens. Set down in England it has occasionally been used with great propriety and charm, but in order to be successful the sculpture required a restraint in the use of plant material which was almost beyond the power of an Englishman. Often it was placed where it had to compete in interest with strange shapes in topiary, bright spots of garden color, various forms of bush and tree, until it is but one of many features to attract the eye. Sometimes, to be sure, it was used in wall and ramp in the Italian fashion, and it is usually most satisfactory when so placed, but there is no tradition or innate sense of fitness urging an Englishman to follow such a scheme.

Where there were few bits of sculpture the gardener wished to make the most of what he had. Consequently he grasped at Le Nôtre's plan of terminating a long vista made by trees or shrubs or bushes with a bit of sculpture.

The foreign innovations aroused a certain emulation at home. There was a demand for garden sculpture from those who could not send abroad. At least this is the first solution that occurs to mind for the lead figures that are so commonly found in English gardens. Lead was a cheap material in those days and easy to handle. Given a proper model, or even the memory of some neighbor's Diana or Bacchante, the ingenious Englishman, with a taste for gimcracks, could mould and pound the malleable lead into very reasonable and entertaining sculptured forms. With his own knowledge of the material which has long been more

Fountain, Palazzo del Commune, Viterbo. F. S.

common in England than elsewhere, he went ahead on his own account. We find all sorts of basins, tanks, gods, and slaves, and later, shepherdesses and their swains, in homely English lead. Occasionally the modelling was well done. More often it was crude and heavy.

While the Englishman is serious, at the same time he will have his occasional joke. In this case his instinct led him aright in joking with his garden sculpture. On the whole, English lead work is jolly and quaint. It fulfils the requirements of strong mass and interesting silhouette. It has good shadows, but little high light, owing to the dull color of the material. For the same reason it fails to harmonize with the architectural material or contrast with a background of foliage. But it does very well at the head of a flight of steps or isolated in parterre or courtyard. In a garden where horticulture occupies first place, yet where the architecture must be softened and embellished, where economy rather than ostentation, where homeliness rather than elegance is the end in view, lead is well fitted to be the material for the sculpture of gardens.

In America there is almost no garden sculpture, and what one sees is rarely satisfactory. We have inherited the best architecture in the world. We have come into possession of much of the best painting and other fine art of the past. Why are our gardens so far behind in this matter of sculpture?

One reason is certainly the cost. We have seen that in Italy, owing to the crudeness of the work, the garden sculpture cannot have been a great element in the cost of the gardens. In France sculpture was very fine but it was only found in the gardens of the kings and the rich nobility. In England, while some expensive foreign statuary was imported, the common material was inexpensive lead, beaten out for the most part by local craftsmen. In America, if we cannot buy the most expensive, we will have nothing. As the expense of a single statue of any size from the most reasonable sculptor could not well be less than a thousand dollars, and one statue goes nowhere in garden decoration, the cost is apt to become, in this country, a very heavy item.

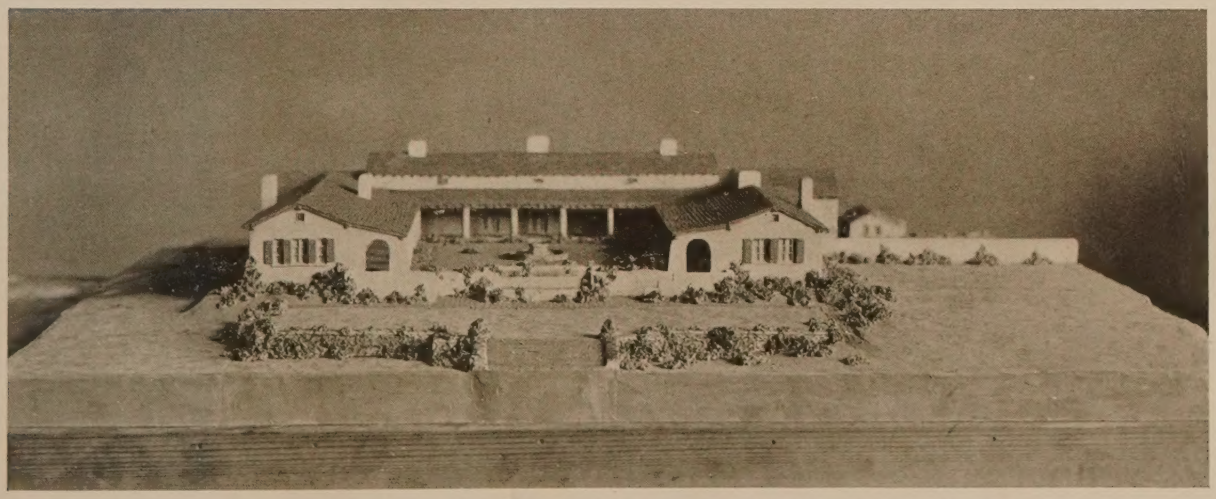
Second, our sculptors all work in studios rather than out of doors, and their work has qualities of elegance and finish which make it interesting as a detail, but quite ineffective from a distance. Strength in mass is not a characteristic of modern American sculpture. Most of the figures are so thin that they look stringy from even a short distance. This means no strong light and shadow. Good silhouettes are going out of fashion with the modern craze for the archaic. Much of the modern sculpture is as out of place as the Venus de Milo in a garden setting. Happily there are certain marked exceptions such as the "Girl Playing with Gazelles," by Paul Manship. While lacking size, this group certainly has, to a degree which has never been excelled, an interesting silhouette. One should place it against sea or sky.

Lastly, there is little satisfaction in the color of modern garden sculpture. It is rarely to be found in marble or the rougher stones which would make it properly harmonious with any architectural setting. Probably the reason is the extreme delicacy, not to say attenuation, of the detail, which makes it inappropriate to stone, except for an interior situation. Ordinarily modern garden sculpture is in bronze, which floods the exhibitions. This is satisfactory in the intimate detail of small gardens, but will not hold its own against foliage from any distance. Certainly it does not serve to embellish the architecture of a garden that is not specially made to provide a setting for it.

Until our sculptors will get out of their studios to work, and provide themselves with walls and balustrades whereon to see the effect of what they do, not as an exhibition piece, but as the detail of a larger scheme, we shall not be able to give sculpture the place which it deserves in landscape architecture.

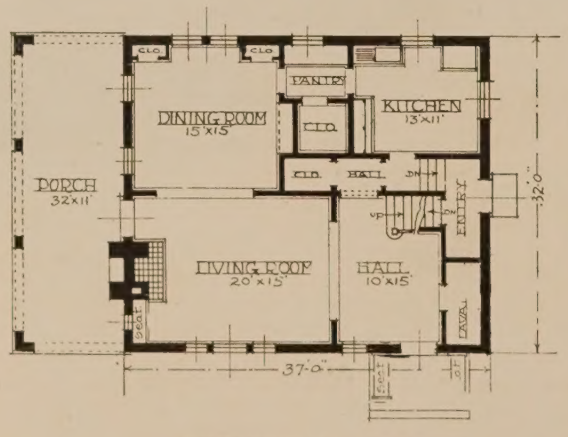
Model for a House at Pasadena, Cal.

Reginald Johnson, Architect



Clients of Mr. Reginald Johnson, the well-known California architect, whose office is in Pasadena, have no difficulty in understanding the plans that he submits. Instead of showing them merely a perspective drawing, Mr. Johnson submits a clay model of the proposed home as it will appear in its landscape environment. The model illustrated is of a $250,000 home to be erected on Orange Grove Boulevard in that city.

HOUSE AT YARDLEY, PA. for MR. E. Y. BARNES.
C. E. Schermerhorn Architect - 430 Walnut St. Phil'a, Pa.



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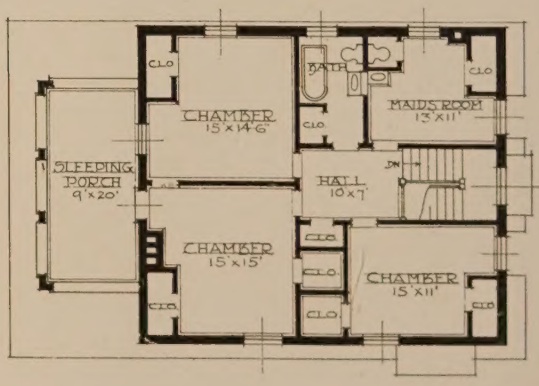


SECOND FLOOR

Editorial and Other Comment

Brass Tacks—Plus

HAS there ever been any great achievement in the arts, in fact in anything that has pushed the earth along a little bit, without a motive power above the idea of mere gain? Even with riches beckoning somewhere in the offing, hasn't the big idea, the creative impulse, the glow of a possible achievement, the sense of power in the mere idea, been the plus quantity that has driven the brass tacks home?

We have had a great awakening, to be sure, and the sound of the hammer on the brass-tacks idea makes a great noise in the land. The sound is that of the hammer of Thor and it has become the tocsin of discontent, unrest, and greed.

The old slogan of art for art's sake is not quite dead, but it seems to be slowly dying, dying peacefully, still believing that there is no art, no ideal, no aspiration worth a drachma, a farthing, we'd better say a copper cent, that is not at the outset based on the cost plus contract.

The cost we'll put in the years of study and work and aspiration, the nervous force, the temperament, the personality, the education. These things have no real fact and figure value unless we compile statistics of the time spent in preparation measured in days' wages.

From certain comments of the day we opine that the education of the architect has been for these many years started on a foundation of the plus quantity, when, of course, according to the new idea it should have begun on pay-dirt or certainly upon a preliminary foundation of brass tacks. The times have changed since Pericles was a power in the land where rose the Parthenon, since Rome was built, since Bramante and Michael Angelo and Leonardo lived, since Inigo Jones and Wren gave England a great name in architecture. And we'll name no names, but there are some of our readers who will think of names even in our own land—where brass tacks are said to be the only fitting fasteners worth a thought —that live in memory first of all by their plus value.

All of which savors of the old-fashioned, the out-of-date, the inconsequential shadow of forgotten dreams. It is to laugh! But in dwelling on such things let it be understood that we are not harking back to a spineless idea of art for art's sake as a shallow excuse for dilettanteism, formless and futile dreaming. Quite the contrary, we want to see a right and proper and substantial use of brass tacks, but they'll never hold anything together for very long without the plus element.

In these words by Mr. Frederick L. Ackerman, there is a hopeful suggestion:

It was "suggested that the profit motive and art were not congenial bed-fellows—this was said with respect to the production of art by professionals. Why does not this thought apply to the entire field of industry? The most vital art the world has ever known arose out of a system of industry uncontaminated by the profit motive. And this suggests that the most direct way to arrive at a peaceful condition in industry would be to seek a return to that state of industry in which the creative impulses of the worker and the instinct of workmanship could express themselves without repression. Such a change cannot be arranged overnight —but that should not stand against it as a goal of endeavor."

The New School of Architecture at Princeton

IT is something of an event in our architectural history to have added to its educational resources the traditions and power and high purposes of such a time-honored institution in the arts as Princeton University.

There never was a time when such a school could be added with the prospect of more usefulness to the country. An era of unprecedented building is before us, building that may either express the utter materialistic mood of the times, or the old traditions based on sound scholarship and the humanities in general.

Princeton has never lacked in an appreciation of the great needs of manliness united with high purposes, scholarship as a preparation for the realities of every-day living. Here men are made ready for men's work when duty calls, when the student may be, in time of great need, transformed into the best of soldiers. All over the land none were quicker to respond to the call to arms than were the young men of Princeton and our other universities. They are taught the lesson of service, of self-discipline, the lesson of readiness to meet emergencies, not only with ideals but with force, sheer physical vigor, an all-around use of mind and body when the occasion calls. Never was a time when there was greater need of trained minds, of minds with a worthy purpose united with a knowledge adequate to meet the demands of the times, minds trained for specific accomplishment, whether the training comes from the university or is found in the hard school of life itself.

"The new lines" upon which the Princeton School of Architecture is based are clearly expressed in the following extract from the announcement:

"As a result of careful and studied growth, there is now established in Princeton University a thoroughly equipped School of Architecture, which, while embodying all the fundamentals of architectural study, is conceived along new lines. It proposes to build its architectural work upon the required basis of a Princeton Bachelor of Arts degree. With this in view, the School has been established as a branch of the Department of Art and Archæology, and is designed primarily to co-ordinate the undergraduate studies of the men electing this department who look forward to architecture as a profession, to graduate them with the Bachelor of Arts degree in four years, and to fit them for the profes-

sional degree in architecture in two additional years. While based upon a thorough undergraduate preparation in the history of art, the school is open to students graduating or transferring from other colleges and universities, if they have complied, or are willing to comply, with the requirements of Princeton University as described in a later paragraph.

"The chief considerations which have led to the establishment of a School of Architecture at Princeton are:

"First.—The conviction that a completely rounded college course is an invaluable asset to the successful architect. This is the belief of a number of distinguished architects who have been consulted and who agree that an architectural school which seeks to produce only the highest type of architect should require candidates for its degree first to secure a Bachelor's degree at the end of four years of liberal training in the broader educational subjects such as ancient and modern languages, history, literature, economics, and mathematics.

"Second.—The fact that architecture is first an art and secondly a science, and should be taught primarily as an art. The technical aspects of the profession, such as business administration, safe and durable construction, and civic building regulations, while having their necessary place in the training of an architect and their due consideration in the Princeton course, can best be learned by actual practice in an architect's office. The architects who have won the most lasting renown are those who have been the greatest artists, men with the power to design buildings which are lastingly beautiful. The Princeton School therefore proposes to emphasize above all else the artistic knowledge and inspiration which are the foundations of good design.

"Third.—The belief that the adequately trained architect must not only know and thoroughly appreciate the historical development of architecture, but must realize, through historical study, the extent to which the other arts, until modern times, have been the handmaids of architecture. There is a growing sentiment on the part of critics and successful architects that the architectural-school graduate is often insufficiently acquainted with the allied arts of sculpture and painting, and the co-ordination of all the arts. The Princeton School proposes to require its students to be systematically trained in the history and appreciation of the allied arts. With a staff of critics and specialists in historical art already in the Department of Art and Archæology, the school can give this training, in connection with the requirements for the Bachelor's degree, without increasing the number of years for the degree in architecture.

"Fourth.—In consideration of the fact that the architectural preparation offered by the school is linked with the requirements of a Bachelor's degree, Princeton University will award, not another Bachelor's degree (Bachelor of Architecture), as is done in most other architectural schools, but the degree of Master of Fine Arts, to be acquired in a minimum of two years of graduate work after the Bachelor's degree has been obtained."

The New York State Association of Architects Legislative Committee for 1920

Mr. Thomas F. Gleason, *Chairman*, Albany, N. Y.; Mr. John H. Scheier, New York City (reappointed); Mr. Alexander Selkirk, Albany, N. Y.; Mr. Robert North, Buffalo, N. Y.; Mr. Edward Loth, Troy, N. Y.; Mr. Edward S. Gordon, Rochester, N. Y.; Mr. Frederick H. Gouge, Utica, N. Y.; Mr. Gordon Wright, Syracuse, N. Y.; Mr. Harry Haskell, Elmira, N. Y.; Mr. Carl C. Tallman, Auburn, N. Y.; Mr. Harry R. Tiffany, Binghamton, N. Y.; Mr. Addison F. Lansing, Watertown, N. Y.

Book Reviews

THE GARDENS OF ITALY, with Historical and Descriptive Notes, by E. March Phillips. Edited by Arthur T. Bolton, F.S.A., F.R.I.B. Containing nearly 500 illustrations. Charles Scribner's Sons, New York.

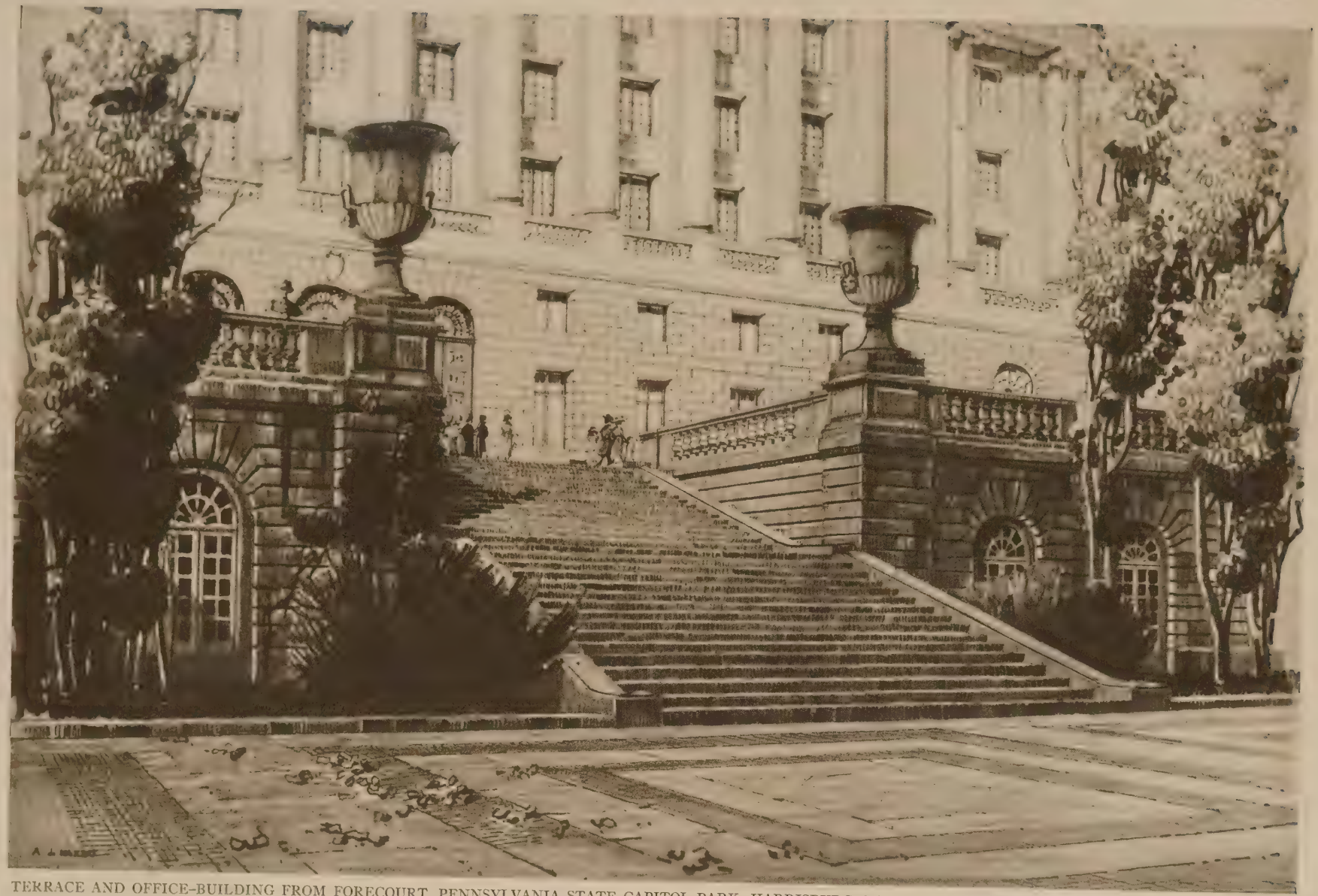
Based on the incomparable collection of beautiful photographs made by the late Charles Latham, this new and revised edition with its many additions of new photographs and old plans and the admirable historical and descriptive notes by E. March Phillips, provides the most complete exposition of an enticing subject. The world owes a great debt to these wonderful gardens of Italy, their influence has pervaded and stimulated the development of the formal garden everywhere. For the architect both the gardens and their architecture are perennial sources of inspiration and suggestion, and for the lay reader they offer the charm of designed use of places of natural beauty and the traditions they revive of the past. The notes by Miss Phillips are full of interesting historic lore, of references to great personalities identified with Rome, with poets and scholars, great men of the church. It is a book that architects will feel they need, a book that the lay reader will look upon as a collection of beautiful pictures surrounded by a text that has the fascination of old romance. In his preface Mr. Bolton says:

"When I set out before the Great War to prepare a new edition of 'The Gardens of Italy' it was with no calculated intention of doing more than a little revision and expansion. The interest of the subject has proved so great, however, that the present volume is, for all practical purposes, a new book. The magnificent series of photographs taken by the late Charles Latham has been retained, save for the elimination of a few subjects of minor interest, and about a hundred and fifty new photographs have been added to make the series of villas and gardens more comprehensive. Miss Evelyn March Phillips's original text, with its valuable historical notes and the delightfully told stories of the people who lived in these old palaces and gardens, has been retained as far as possible. My work has been to add architectural notes throughout, to enlarge considerably the sections relating to the Roman and Florentine examples, to write entirely new chapters on the villas and gardens of Venetia, the lake district, and Genoa, to contribute a general introduction, and, not least important, to gather together a valuable series of plans. For these I have drawn freely on various sources, including Gauthier and Reinhardt for Genoa, and Percier et Fontaine for Rome. Although the garden plans by the latter, now reproduced, were made as long ago as 1809, they are in general so clear and correct that I thought it better to give them in their original state. Those which I checked on the spot did not show differences of such importance as to make it necessary to alter the originals. They contain in some instances restorations which Percier et Fontaine thought were justified to complete the original schemes. In some cases, *e. g.*, the Palatine Hill, the drawings by these authors are all that now remain, and their labors in recording these old gardens deserve our warmest recognition."

PROPORTIONAL FORM, FURTHER STUDIES IN THE SCIENCE OF BEAUTY, BEING SUPPLEMENTAL TO THOSE SET FORTH IN "NATURE'S HARMONIC UNITY." By Samuel Colman, N. A. and C. Arthur Coan, LL.B., authors of "Nature's Harmonic Unity," etc. The drawings and correlating descriptions are by Mr. Colman. The text and mathematics are by Mr. Coan. G. P. Putnam's Sons.

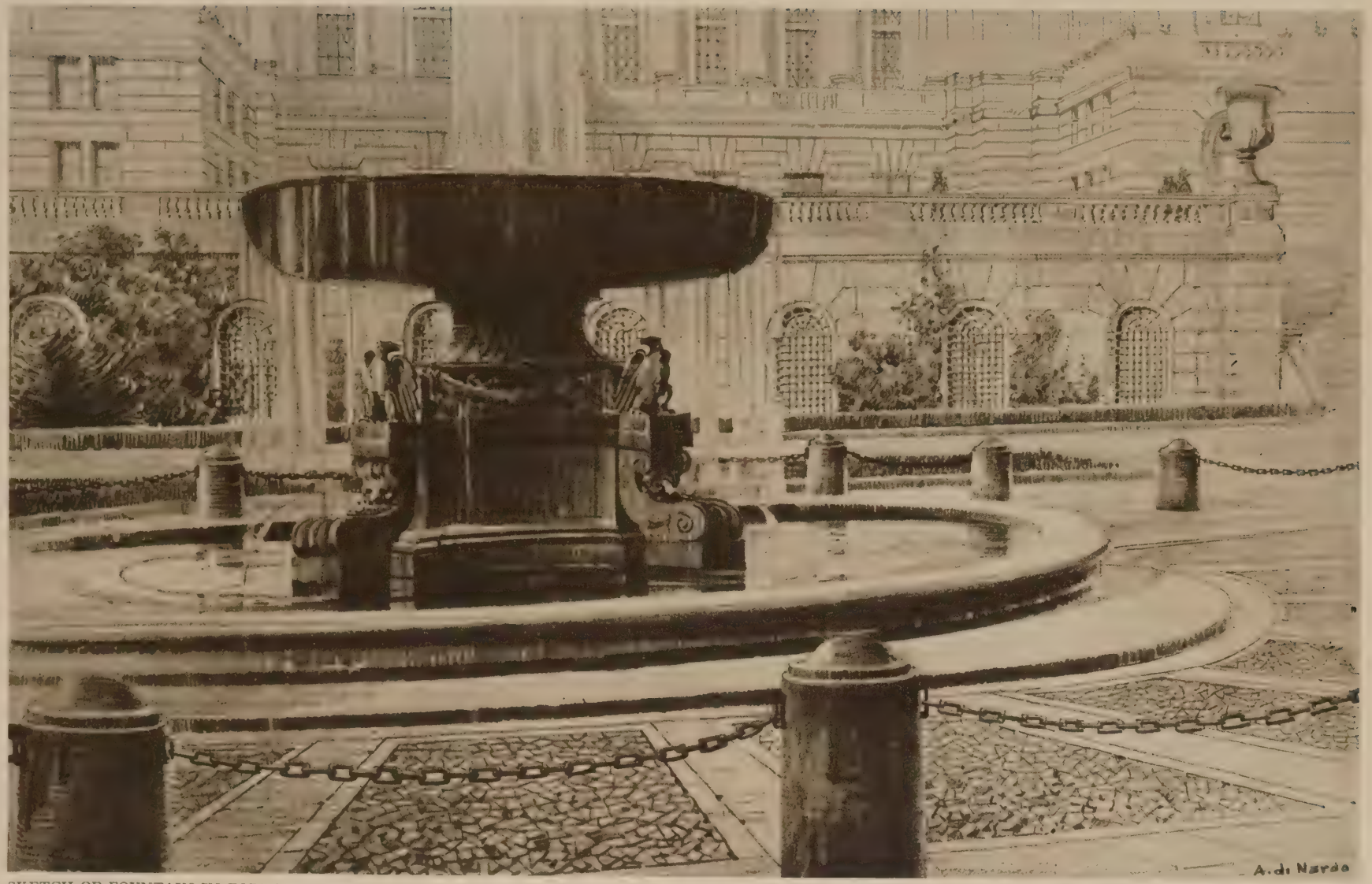
We have listened with rapt attention to Mr. Hambidge expounding his theories of the beginning of the laws of design in nature, and we know that he is a great prophet and original among those who are able to follow him around in his whirling squares. In the present volume we are led directly to nature as the source of art with "the Tetragon Family and Pentagon Family in constant evidence" and while it is clear that the ancients laid out temples and carved monuments and wrought metals on lines which indicate that they followed the indices of Nature's mode, it is unnecessary to presuppose that those ancients understood or pretended to understand at all why nature did these things. In vast degree we do not understand their point ourselves to-day.

We commend most highly as of great value in the systematizing of every architect's office records "LANDSCAPE ARCHITECTURE; A Comprehensive Classification Scheme for Books, Plans, Photographs, Notes, and Other Collected Material with Combined Alphabetic Topic Index and List of Subject Headings," by Henry Vincent Hubbard, Assistant Professor of Landscape Architecture at Harvard University, and Theodore Kimball, Librarian of the School of Landscape Architecture. Paper covers. The Harvard University Press, Cambridge.



TERRACE AND OFFICE-BUILDING FROM FORECOURT, PENNSYLVANIA STATE CAPITOL PARK, HARRISBURG, PA.

Arnold W. Brunner, Architect.



SKETCH OF FOUNTAIN IN FORECOURT, PENNSYLVANIA STATE CAPITOL PARK, HARRISBURG, PA.

Arnold W. Brunner, Architect.

ENTRANCE VESTIBULE, OFFICE OF WELLES BOSWORTH, 527 FIFTH AVENUE, NEW YORK. Welles Bosworth, Architect.

MANTEL, MR. BOSWORTH'S LIBRARY. Welles Bosworth, Architect.

OFFICE OF WELLES BOSWORTH, 527 FIFTH AVENUE, NEW YORK.

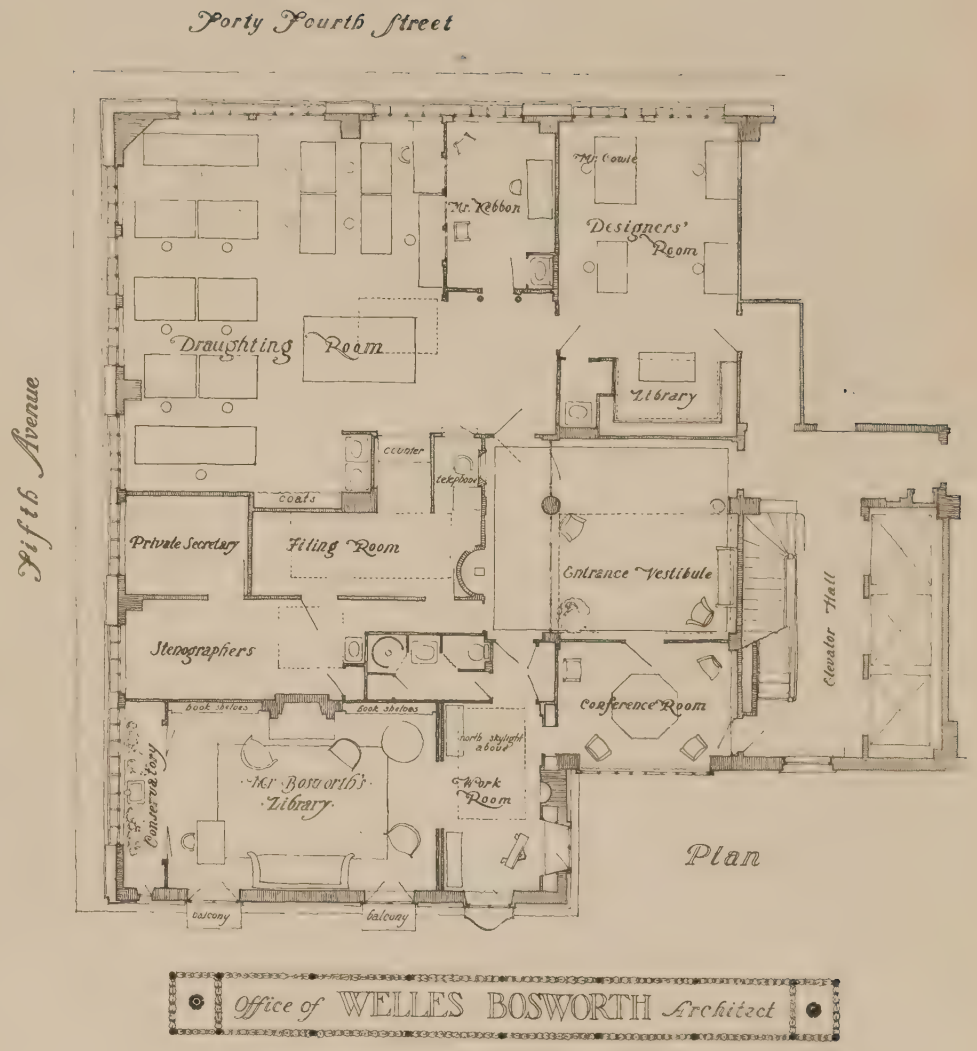
MR. BOSWORTH'S LIBRARY AND WORKROOM.

LIBRARY CONSERVATORY. Welles Bosworth, Architect.

OFFICE OF WELLES BOSWORTH, 527 FIFTH AVENUE, NEW YORK.

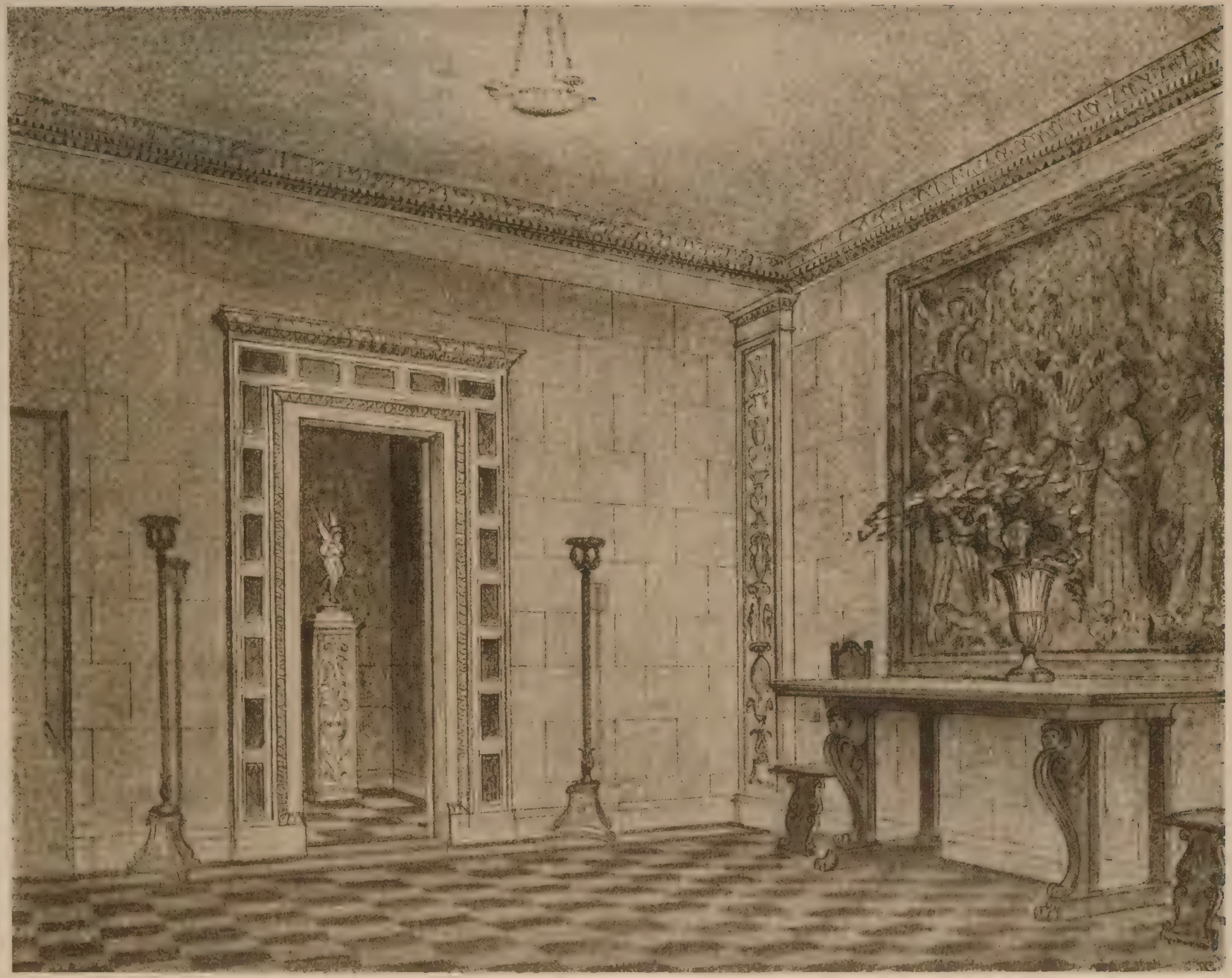
CORNER IN VESTIBULE.

CONFERENCE ROOM.



OFFICE OF WELLES BOSWORTH, 527 FIFTH AVENUE, NEW YORK.

Welles Bosworth, Architect.

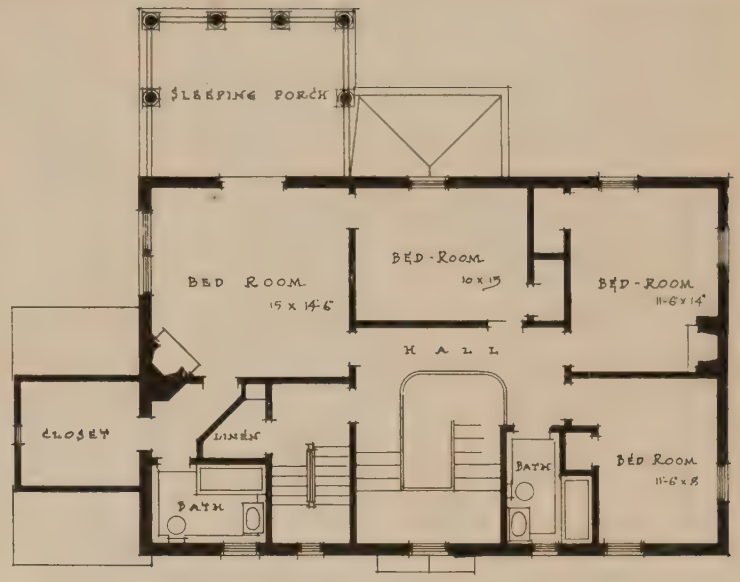


ENTRANCE HALL, APARTMENT, 270 PARK AVENUE, NEW YORK. Welles Bosworth, Architect.

RESIDENCE, P. R. JAMESON, ROCHESTER, N. Y.

Clement R. Newkirk, Architect.

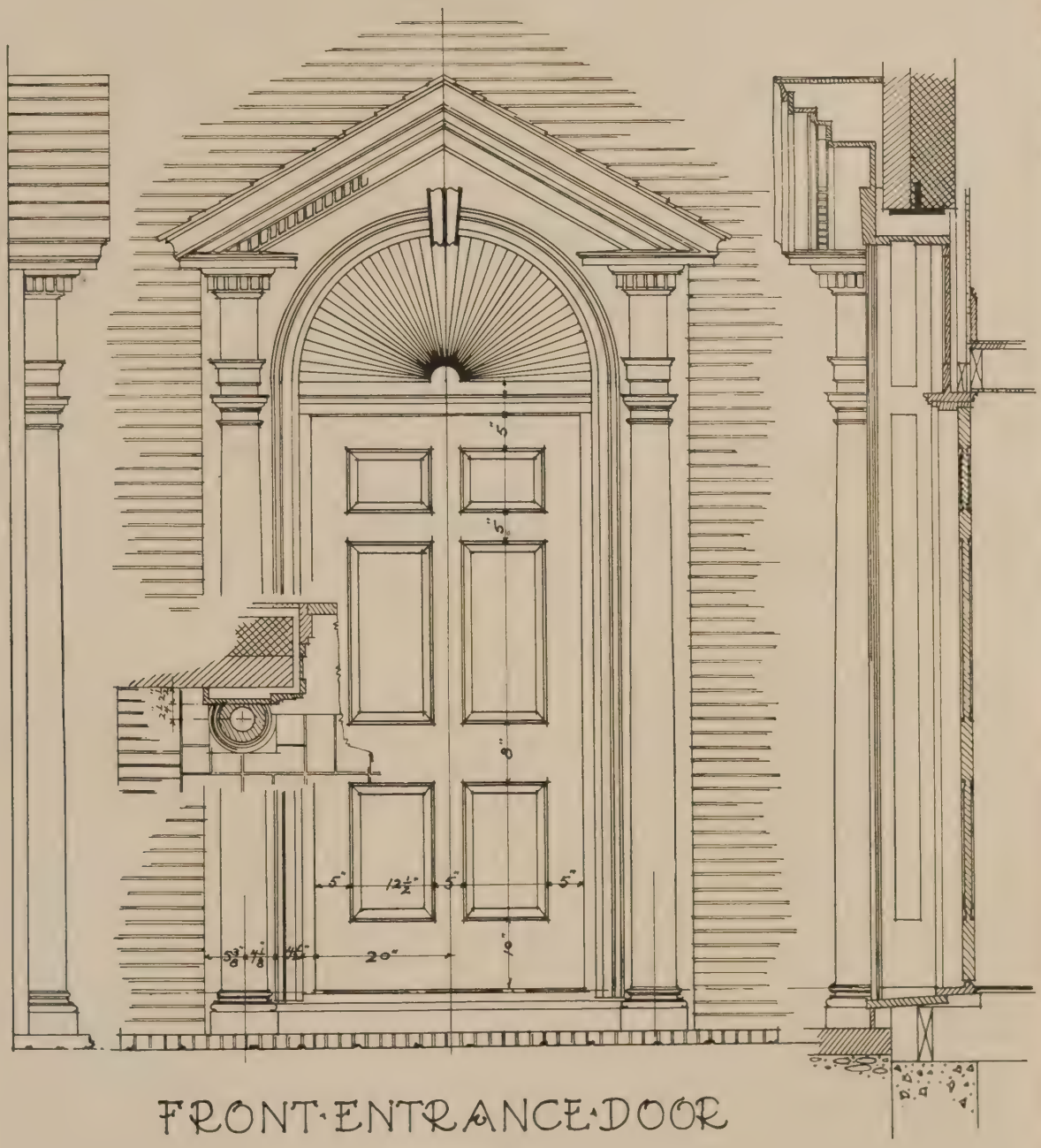
MAIN ENTRANCE, RESIDENCE, P. R. JAMESON, ROCHESTER, N. Y.



SECOND FLOOR PLAN

FIRST FLOOR PLAN

Clement R. Newkirk, Architect.



FRONT ENTRANCE DOOR

RESIDENCE
FOR
MR. P. R. JAMESON,
ROCHESTER, N.Y.
CLEMENT R. NEWKIRK
ARCHITECT
ROCHESTER, N.Y.

DINING-ROOM.

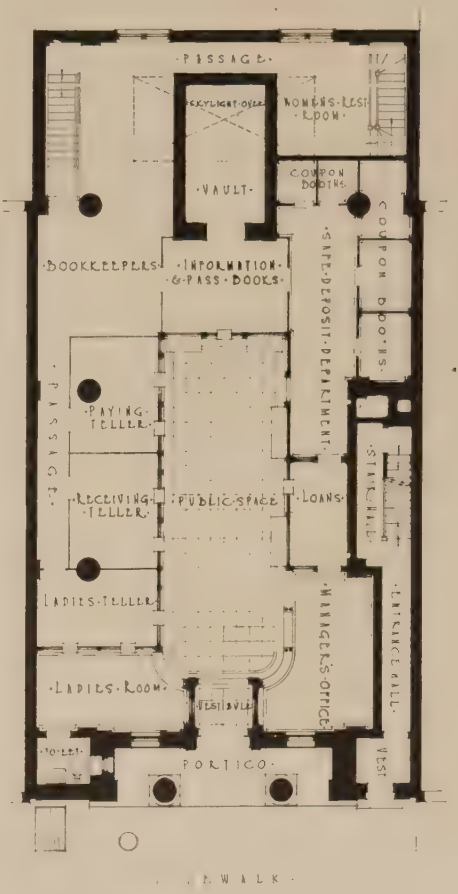
HALL AND STAIRWAY.

RESIDENCE, P. R. JAMESON, ROCHESTER, N. Y.

Clement R. Newkirk, Architect.

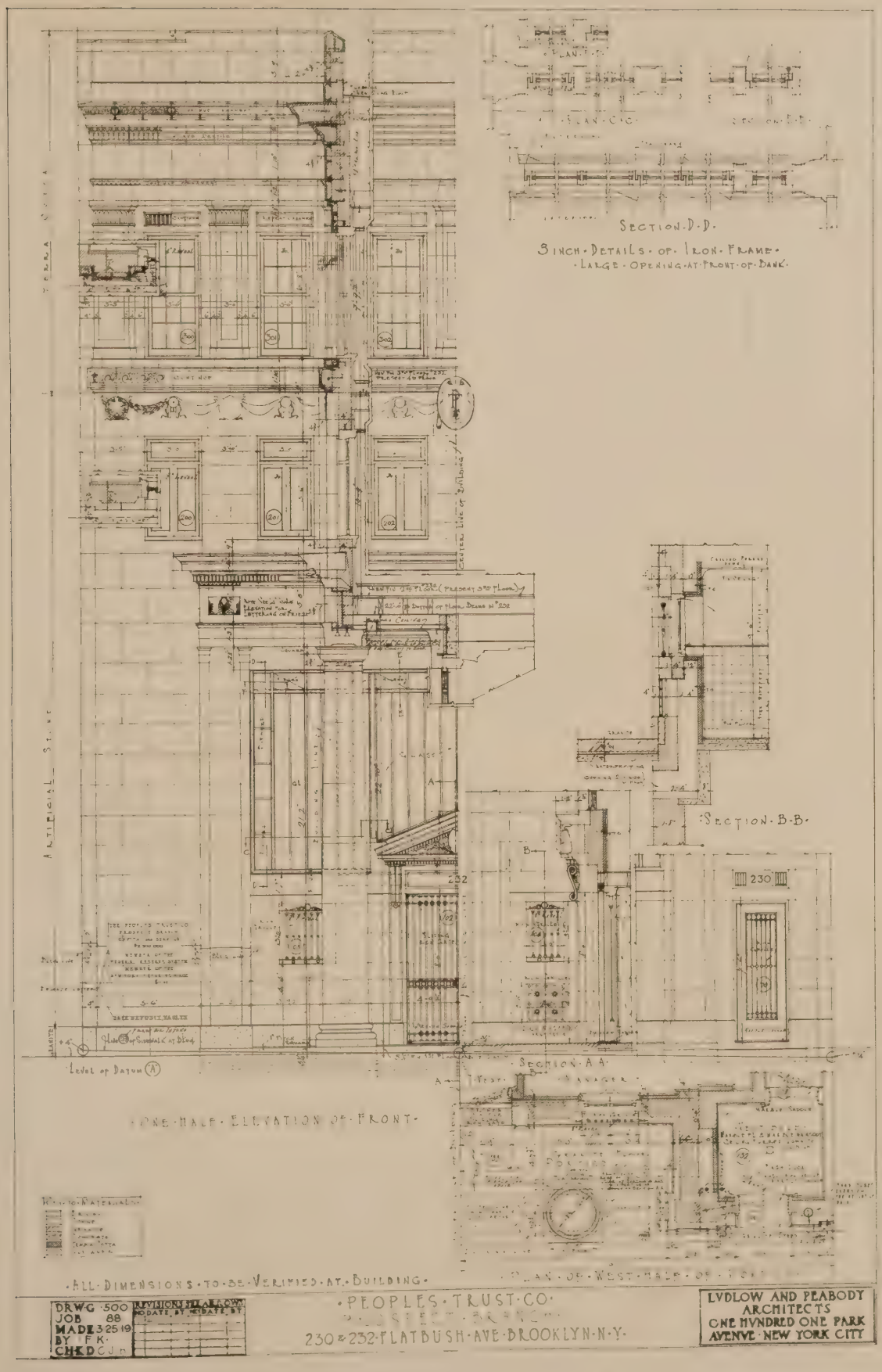
BANKING-ROOM, THE PEOPLES TRUST CO. BUILDING, BROOKLYN, N. Y. Ludlow & Peabody, Architects.

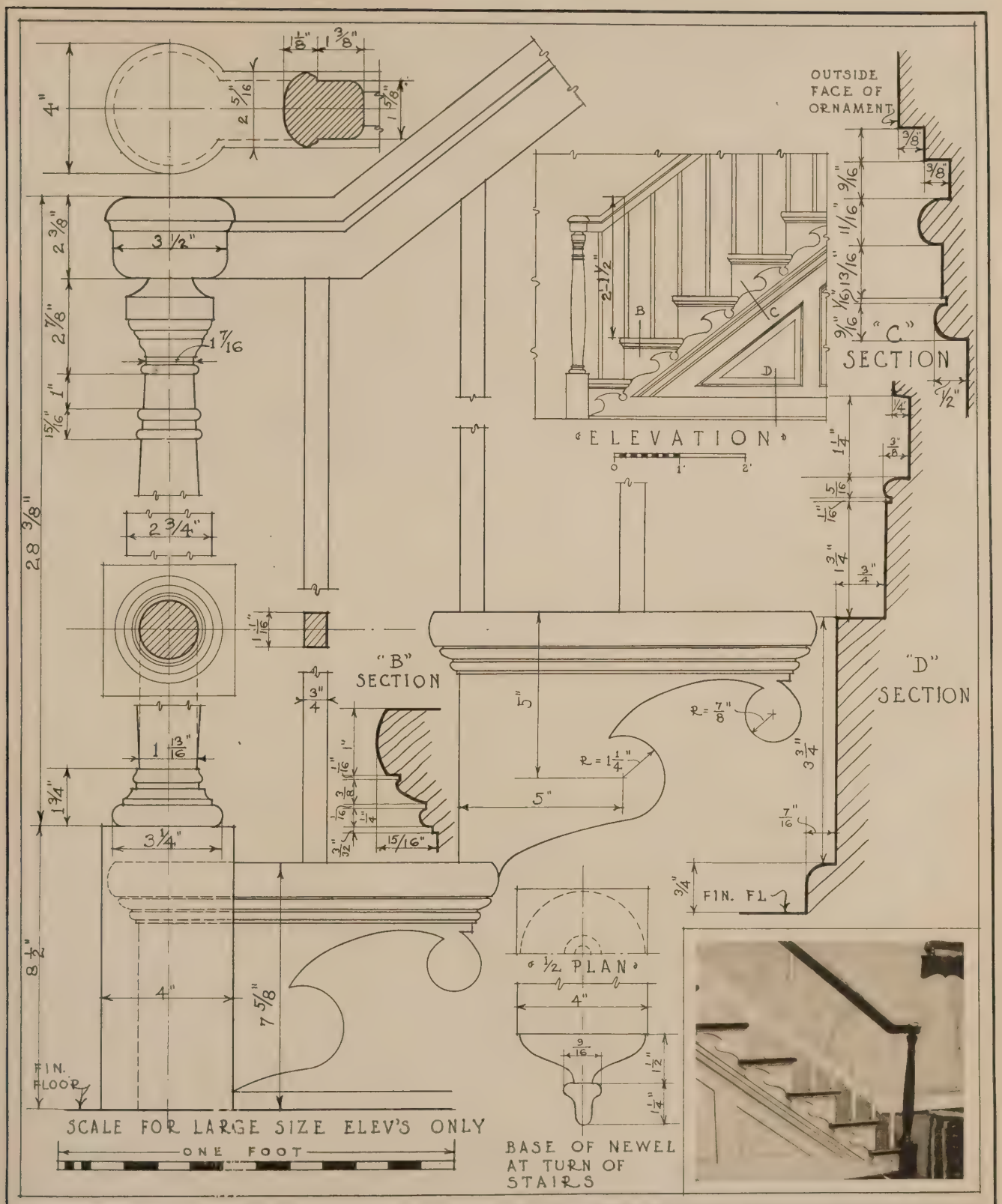
PORTICO, THE PEOPLES TRUST CO. BUILDING, BROOKLYN, N. Y.



FIRST FLOOR PLAN

Ludlow & Peabody, Architects.


PLAN C-C
SECTION D-D
3 INCH DETAILS OF IRON FRAME
LARGE OPENING AT FRONT OF BANK
SECTION B-B
SECTION A-A
ONE-HALF ELEVATION OF FRONT
PLAN OF WEST HALF OF
ALL DIMENSIONS TO BE VERIFIED AT BUILDING
DRWG 500
JOB 88
MADE 3 25 19
BY F K
CHKD
PEOPLES TRUST CO
230 & 232 FLATBUSH AVE BROOKLYN N Y
LUDLOW AND PEABODY
ARCHITECTS
ONE HUNDRED ONE PARK
AVENUE NEW YORK CITY



EARLY COLONIAL ARCHITECTURE OF THE OHIO VALLEY

STAIRWAY IN AN OLD RESIDENCE

CIRCLEVILLE, OHIO

MEASURED & DRAWN BY
Daniel W. Weiny

Alterations to City Buildings, Shops, Studios, and Apartments

THE continued and increasing necessity for saving old or existing buildings makes the publication of such alterations of great interest to members of the profession who are called upon for this class of work. There are many special and profitable opportunities in this field of work, and the result promises to be a decided improvement of both our domestic and commercial architecture—we have gone forward since the brownstone period.

421-431 Park Avenue (before alteration).

In New York City many buildings have been reclaimed and there is an ever-increasing demand for remodelled shops, studios, and apartments. The owner finds it a good investment, the architect is able to plan with much freedom from the ordinary building restrictions applied to new construction, and tenants compete for leases.

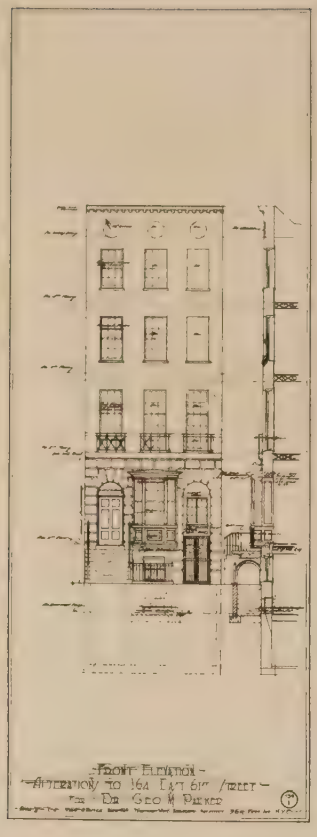
Nos. 421–431 Park Avenue were six old brownstone houses which were occupied as ordinary boarding-houses. The architects simply cleaned them out, kept as many partitions as possible, replastered, installing new plumbing, heating, and electric work, refloored and decorated, and put them in livable condition.

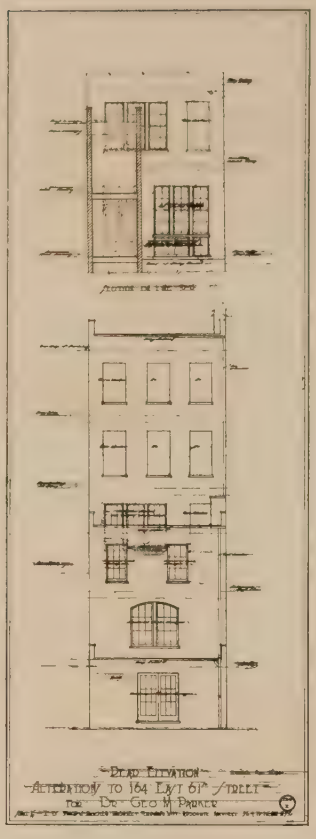
No. 164 East 61st Street is a 20-foot wide, four-story and basement, brownstone house. The upper three floors are being remodelled as per the plans, providing for one

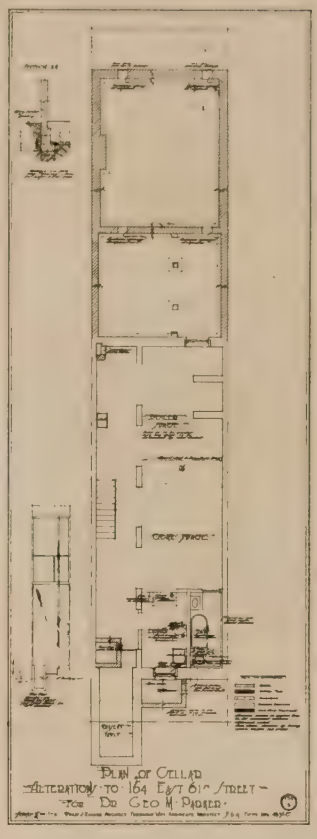
(*Continued on page 141.*)

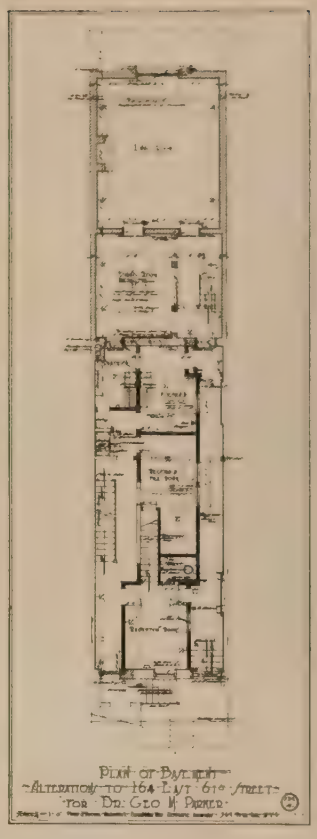
421-431 Park Avenue, New York (alteration). Shops and apartments

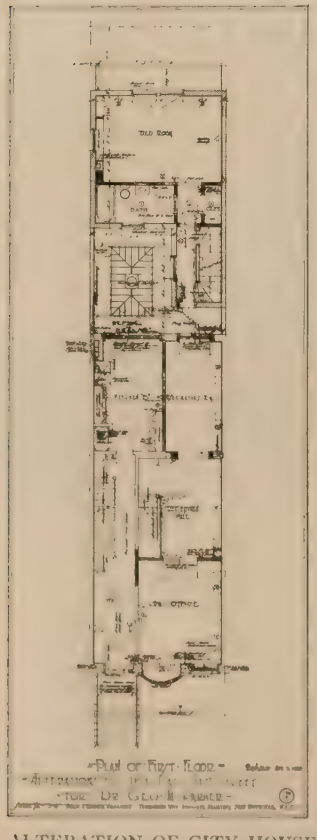
Casale & Witt, Architects.

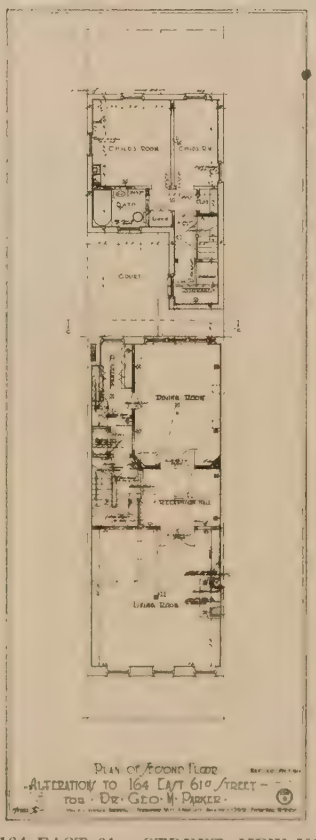


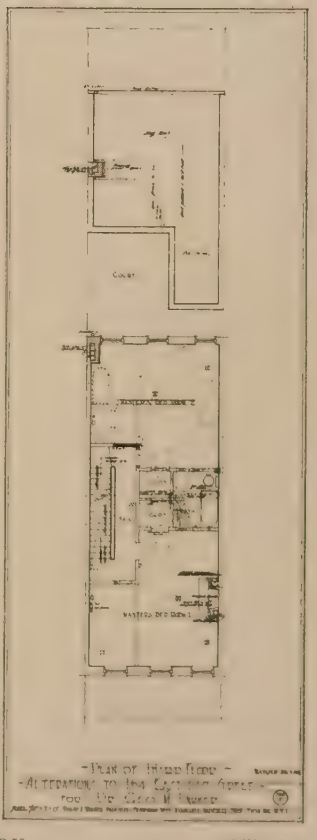


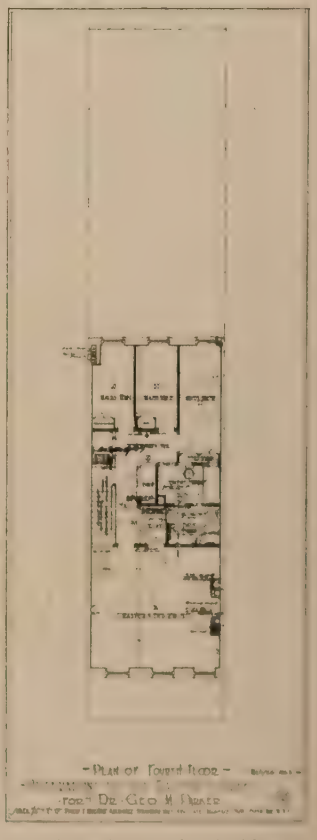












ALTERATION OF CITY HOUSE, 164 EAST 61st STREET, NEW YORK. Philip J. Rocker and Ferdinand Witt, Architects.

(*Continued from page* 139)

apartment, using the old brownstone stoop as a separate entrance, which eliminates the necessity of any service to this tenant, excepting for heat and hot water, which the owner, who occupies the basement and parlor floors, has to provide for his own use anyway.

A new American basement entrance provides access to the basement and parlor floor, which apartment is occupied by the owner. In the cellar of the building there is a laundry, heating-plant, storage-rooms, and the like.

Interior of shop, A. Sulka & Co., 512 Fifth Avenue, New York.

Taking the interest on the owner's investment, his taxes, insurance, coal, and the expense in running the furnace, there is an amount equal to about $4,200 a year. The upper apartment has been leased for five years on a basis of $5,000 per year; therefore, the owner, who has the entire basement and parlor floor and the extension in the yard, gets rent free and a profit of $800 a year for five years.

Show-case and woodwork, Sulka shop.
Alfred Freeman, Architect of Interior.

Three shops (offices above), 512 Fifth Avenue, New York (alteration)

Rouse & Goldstone, Architects.

SHOPS AND STUDIOS, 7 EAST 55TH STREET, NEW YORK.
(ALTERATION)

H. JAECKEL & SONS, FIFTH AVENUE, NEW YORK.
(ALTERATION) Starrett & Van Vleck, Architects.

8 AND 10 EAST 48TH STREET, NEW YORK.
(ALTERATION) Blum & Blum, Architects.

22 EAST 48TH STREET, NEW YORK.
(ALTERATION) Wm. Edgar Moran, Architect.

Building Prospects in Chicago

YE editor has made a canvass of many of the architects' offices in Chicago in order to secure at first hand reliable data as to what might be expected in the way of building construction in Chicago the coming season.

The result of the investigation has convinced him that if all the work now being planned by Chicago architects is actually let within the next ninety days, that it will require the entire building industry of Chicago at least three years to complete same.

Building costs are continually advancing, and in some cases stocks are almost entirely depleted. Recently, material advances have been made for steel, timber, and lumber, boilers, radiation and steam-fitting supplies, plumbing goods and supplies, glass, roofing materials, brick, cement, sand, gravel, lime, and in fact it would be difficult to name a single item entering into a completed structure that has not advanced in price during the past three months.

The prospects are for further material advances in certain lines, and within a few weeks it will not be a question of price, but, can the goods be secured at any price?

The result of this situation will be that there will probably be but few of the cheaper apartment buildings, bungalows, and cottages built in the next few years—at least not until there has become such an acute shortage of housing that the present renting schedules are increased at least 60 per cent. A careful check was recently made on the net income which could be secured from a modern three or six apartment building containing five and six room apartments that three years ago rented for from $40 to $50 per month, and it was found that due to the increase in taxes, cost of coal, upkeep, as well as construction costs, that such apartment buildings could not be constructed and rented at a profit unless the rents were advanced to from $85 to $100 per month. A similar condition is found in connection with office-building construction in Chicago to-day. There is not a single desirable office for rent in the entire loop. Agents of many office-buildings have practically doubled their rents, but until rents further advance, there will be no incentive for large investors to construct office-buildings. About the only investment building which at present construction costs may possibly show a profit is the construction of the highest grade apartment hotels and theatres, and large industrial work, which must be built in any event and irrespective of costs. In connection with the growth of industrial building, it might be noted that very much of the present increase is caused by the absolute necessity of increasing the working space in factories to make up for the reduction in output due in many cases to the unionizing of industry and the substitution of a 44-hour week for the 56-hour week, in order to secure the same output.

There is to-day in Chicago a most serious shortage of not only skilled mechanics but of building laborers. Some of this can be traced to the labor turnover which occurred shortly after the beginning of the war when the government concentrated its large building programme in the East, and thousands of Chicago mechanics were attracted to the East by the offers not only of increased pay but of all the overtime they wished to put in. Many of these mechanics are still in the East, and notwithstanding the fact, as the editor is creditably advised, in many of the Eastern centres there is a large surplusage of labor in all lines, yet for some reason this class of labor is not returning to the Western centres as rapidly as might be hoped for.

Having in mind all of the foregoing, it is the editor's prediction that building costs in Chicago and vicinity will, during the next four months, show a further advance of at least 20 per cent to 35 per cent and that before this time has elapsed, owners will be asking, not what certain materials are worth, or what price may be asked for same, but, can they be secured at all?

Bulletin Illinois Society of Architects. F. E. Davidson, Editor.

Federal Loan Banks to Aid Home Builders

THE next Congress will be asked to enact legislation necessary to the establishment of a system of Federal Home Loan Banks. A tentative bill has been prepared and has been mailed to all officers and committees of the United States League of Building Associations, and copies can be obtained from the Division of Public Works and Construction Developments of the United States Department of Labor.

In its campaign to stimulate building activities the United States Department of Labor, in January, invited representatives of the United States League of Building Associations to a conference in Washington for a discussion of ways and means of increasing the usefulness of the building and loan associations. It was realized that these associations played an important part in the home-building activities of the nation, and it was the hope of the Department of Labor that their field of usefulness might be enlarged. Out of this conference came the movement in favor of a national system of Home Loan Banks through which these associations might rediscount their securities and make available for further loans a greater portion of their assets.

The chief work of the building and loan associations is lending money to home builders. Association representatives, in the Washington conference, suggested that Congress enact a law, permitting these associations to organize regional banks, capitalized by the associations and operated by them under government supervision. The purpose of this was to provide a regional bank which would perform for building associations a service similar to that performed by the Federal Reserve Bank for the commercial banks, and by the Federal Land Bank for the National Farm Loan Association.

Owing to the congestion in important legislative matters in the last Congress it was impossible to obtain consideration for the Federal Home Loan Bank project. The building and loan associations, working in harmony with the aims of the Department of Labor in its campaigns for the revival of building and construction activities, now have drafted a tentative bill which, with such revisions as may be considered prudent, will be introduced in the next Congress with the influence of the national and state organizations of building and loan associations behind it.

Per Capita Consumption of Lumber

The per capita consumption of lumber is greatest in the newer States, such as Montana, according to R. C. Bryant, Industrial Examiner for the U. S. Forest Service, in a recent bulletin. Montana had a per capita consumption in 1915 of 1,234 board feet, whereas those States having a large percentage of urban population show a lower rate of consumption. For instance, in 1915 the consumption in New York State was 206 board feet, and in Pennsylvania 293 board feet. It is quite probable that the unusual building activity this year, especially in dwellings, will raise the per capita consumption for 1919 even in the older States.

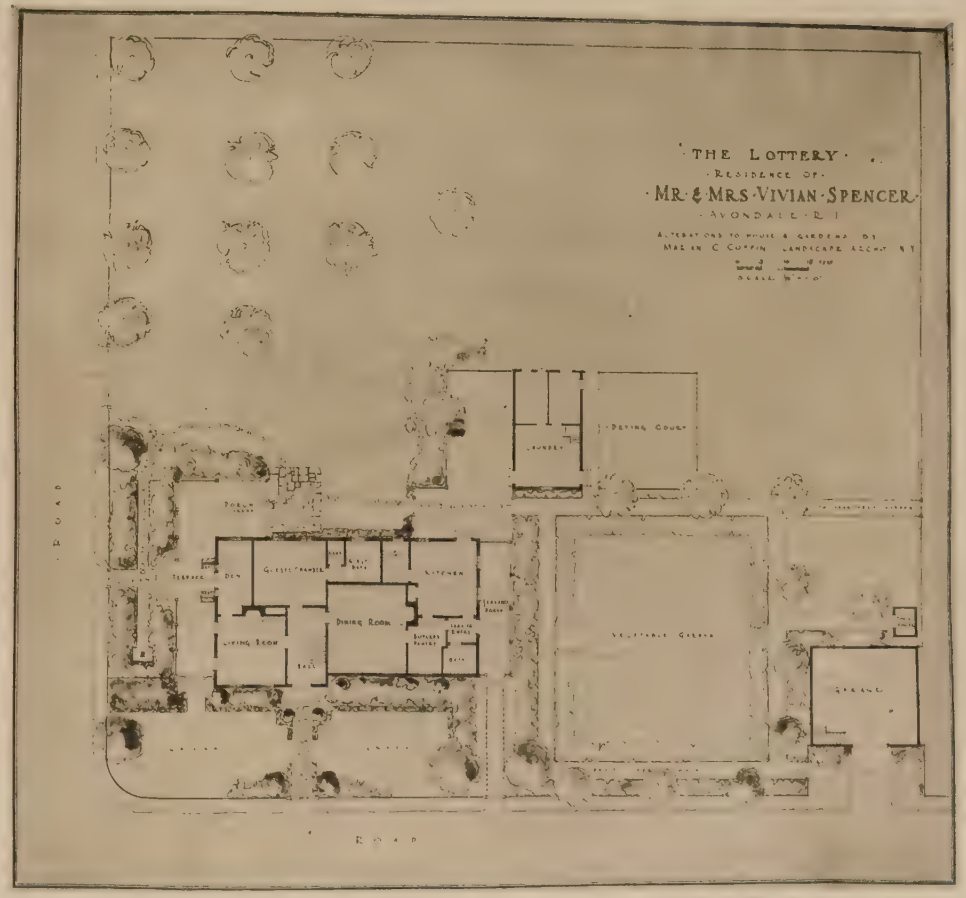
HOUSE AND GARDEN (ALTERATION), MR. AND MRS. VIVIAN SPENCER, AVONDALE, R. I.

Marian C. Coffin, Landscape-Architect.

HOUSE BEFORE ALTERATION.

HOUSE BEFORE ALTERATION.

ENTRANCE DOORWAY (ALTERATION).



Marian C. Coffin, Landscape-Architect.

HOUSE AND GARDEN, MR. AND MRS. VIVIAN SPENCER, AVONDALE, R. I.

Notes on Engineering Units for Architects

By DeWitt C. Pond, M.A.

IN articles published under the general heading of "Engineering for Architects," which appeared in ARCHITECTURE from time to time, the practical application of general engineering principles was given. There was not, however, a very comprehensive discussion of the principles involved and the reader was sometimes forced to determine the reason for certain calculations without much help from the text. It is the object of this article to enumerate certain of the fundamental principles underlying any engineering calculation which an architect would have to make.

In the first place, a word which occurs constantly in all engineering calculations is "moment." Almost all engineering calculations are based upon the finding of moments, but there is very little real understanding of what this word means. The moment is the unit by which a tendency to revolve around a point is determined. In exactly the same manner that a foot is used to determine a lineal dimension the moment is used to measure a revolving tendency. Obviously this tendency depends on two things: the first is the force used to produce revolution and the second is the distance from the centre at which this force acts. A moment, then, must take these two things into consideration—that is, force and distance. This is a peculiarity of satisfactory to look upon a moment as a *tendency* than as a product of multiplication.

To come to practical facts, let it be assumed in Figure I that the centre of gravity of the weight (W) is ten feet from the edge of the platform, and that the weight itself equals 100 pounds. If we suppose that the plank has no weight, then the tendency to produce rotation about the point (a) will be measured in terms of the distance, ten feet, and weight, one hundred pounds, and will be one thousand foot-pounds. In other words, the tendency to produce rotation is shown by the weight multiplied by a distance and the *unit* of measurement is one in which weight and distance are shown or the "foot-pound."

Very often beginners will attempt to measure moments in units of force only, or in units of distance alone. This is as incorrect as it would be to measure miles in units of liquid measure, such as quarts, or to measure money in units of lineal measure, such as feet. Each particular type of measurement has its particular units of measurement and the moment is a unit in which both distance and weight appear. A moment may be measured in inch-pounds or foot-pounds, inch-tons or foot-tons, but both inches or feet and pounds or tons must appear in the unit.

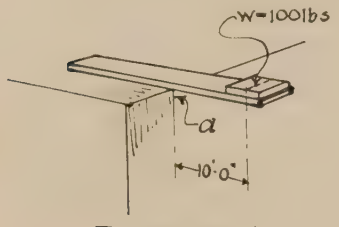


FIGURE I

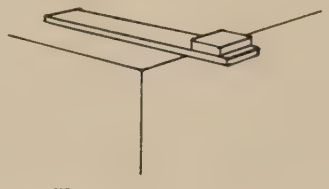


FIGURE II

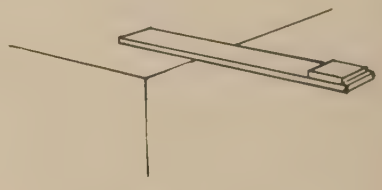


FIGURE III

this particular unit. The foot measures simply distance; the pound simply measures weight; but the moment must measure both weight and distance.

Suppose a plank is shoved out from a platform so that one end projects out in space. This projecting end is then a cantilever. Suppose a weight were placed at the end of this cantilever as shown in Figure I. It is obvious that the ability of the weight to cause the cantilever to fall depends on two things: first, the weight itself; and, second, the distance that it is pushed out into space. If either is great enough the cantilever will revolve around the edge of the platform and eventually fall.

In Figure II is shown a cantilever projecting only a very short distance beyond the edge of the platform, but a heavy enough weight may be imposed upon it to cause it to tip up or revolve about the edge of the platform. In Figure III the same plank is shown projecting at a comparatively large distance but with a small weight, and this would cause the plank to revolve. Therefore it is obvious that these two things—weight and distance—must be considered when it comes to the question of moments. The word moment may be defined as follows: "A tendency to produce rotation about a point which is measured in terms of force and distance." In the language of the unacademic student a moment is "force times distance," and this is accurate enough if it is thoroughly understood, but it is much more

This is apparent enough when a simple cantilever is shown, such as in Figures I, II, and III, but it becomes difficult to understand when simple beams are shown or it is a question of footings where seemingly no cantilever exists, and where actually it is sometimes difficult to determine just what moment it is required to find.

Investigating a case of a simple beam as shown in Fig-

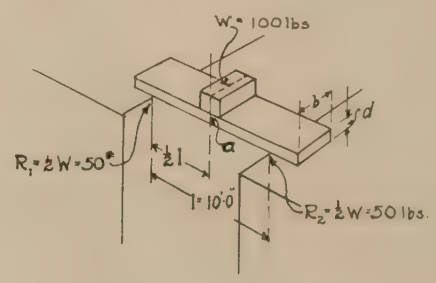


FIGURE IV

ure IV it will be noticed here that the plank instead of being shoved out from the platform and overhanging the edge is not resting between two supports. This is called a simple

beam. This load will be called a concentrated load, although strictly it is spread over a certain amount of space, and therefore might be considered a uniform load. However, it extends over such a small amount, that it will be treated as though it were a concentrated load, with its weight concentrated at the centre of gravity as shown in the figure.

The length of the span is noted in the figure as l and the distance from the point of support to the centre of the load is known as $\frac{1}{2}l$. Now, it is obvious that if the load (W) were large enough it would cause the plank to break by bending the plank until it was fractured. It will be noted that it is the *bending* that causes the breaking of the beam, and in order to produce bending there must be a moment.

If a casual observer were asked what broke the beam he would say the load, and of course actually this is true, but the engineer would claim that the load itself could not have broken the beam unless the span were so great that a sufficient moment would have been set up. This is apparent when Figure V is observed, in which the same load and the same plank are involved but the supports are so near together that there is not a sufficiently great tendency toward bending to cause the plank to fail. It is obvious then that the clear span between the supports is a very important factor, and this span and the load together must be taken into consideration when the failure of the beam is to be considered. When the question of bending is involved we must consider moments because moments are the units by which bending—or the tendency revolving about a point—is measured. What moments, therefore, exist which will tend to bend the beam in Figure IV until it will break? To the layman the only load that is acting upon the plank is that shown as W in the figure, but actually two more loads are acting. These two are at the points of support. These must act with an upward force to support the beam or else the beam will fall. This is sometimes a hard point for the layman to grasp—he cannot see that an immovable object such as a floor or a platform can exert an upward pressure. He would understand this, however, should he fall from any height upon the floor or the platform. The sensation which he would receive would be the same as if the floor or platform had come up and struck him. In other words, the floor exerted an upward force sufficient to produce somewhat unpleasant sensations. In the same way the supports at each end of the plank would exert upward pressure and the total amount of upward pressure exerted by both supports would equal the total downward pressure caused by the load itself (W). Of course, if the load is directly in the middle, as shown in Figure IV, then each support will bear an equal part of the load. If the load were moved, as in Figure VI, nearer one support than the other, then the support to which it is nearer will have to carry the greater part of the load. The method of determining the proportionate amount of the load carried by supports when the load is not directly in the middle will be given later. It is sufficient for the time being to realize that each support exerts an upward pressure.

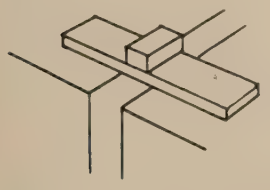


FIGURE V

It is obvious that the point at which the beam will fail will be directly under the load. As the beam fails by bending the moment must be set up and in this case the moment is set up about the point a. In other words, it must be a force exerted on the beam some distance away from a which would cause a moment. Obviously the only force that could be exerted would be the force of either one of the two supports. As the condition in Figure IV shows that the supports are exerting equal pressure, it does not make much difference which force we select as the one causing bending around a.

Let us assume that the left support is the one. It is obvious that this support will exert an upward pressure equal to one-half the load W. This, then, is the force. The distance is equal to $\frac{1}{2}l$, therefore the load which will cause the bending and cause the beam to fall would be $\frac{1}{2}W$ multiplied by $\frac{1}{2}l$ or $\frac{1}{4}Wl$.

This is purely theoretical and it may be well to illustrate the condition by actual figures. Supposing the load (W) is equal to 100 pounds, and suppose the span (l) is equal to 10 feet, or 120 inches. Without the slightest hesitation the reader will naturally assume that the load at each support will be 50 pounds. The moment then around the point a will be equal to 50 pounds multiplied by a distance equal to one-half of the span, or 60 inches, which will be equal to 3000 inch-pounds. The same result could be obtained by substitution in the formula given above, if we assume that M represents the moment. This formula will read: M equals $\frac{1}{4}Wl$, and by substitution we can find that M will equal $\frac{1}{4}$ multiplied by W (100 pounds) and multiplied by l (120 inches), or $\frac{1}{4} \times 100 \times 120 = 3000$ inch-pounds.

Now that the moment has been obtained the question naturally arises: "What is the reason for performing all this work?" The answer is that we must determine a resisting moment which the beam itself will set up which will cause it to withstand the moment caused by the load. For the present discussion it will simply be stated that the resisting moment of a simple rectangular wood beam is given by the formula $M = S \times \frac{1}{6}bd^2$, in which S is the strength of wood, b is the breadth of the beam, and d is the depth. In this case the moment set up by the external force is 3000 inch-pounds. The resisting moment of the beam must be equal to this. The tensile strength of the wood will be taken as 1200 pounds and the only unknown quantity will be the breadth and depth of the wood beam. It will be necessary to assume one of these factors, and so we will consider that the plank is one foot wide, and b will be equal to 12 inches. Then it is only necessary to find how thick the beam has to be. Substituting in the formula, we have 3000 inch-pounds equals $12{,}000 \times \frac{1}{6} \times 12 \times d^2$, or by cancellation and transposing we find that d^2 is equal to 3000 divided by 2400, or equals $1\frac{1}{4}$ inches; d is then equal to 1.12 inches. Of course, no beam comes exactly $1\frac{1}{8}$ inches thick, so the chances are a 2-inch plank would be selected in order to carry this load.

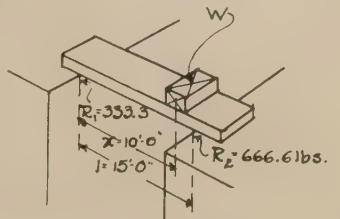


FIGURE VI

Another step in the study of moments is taken when it is necessary to determine the upward reaction, or the force, at the ends of a simple beam. Figure IV shows the beam with the load exactly in the centre, and it is a simple matter to assume that both of the reactions—the upward loads at the points of support—will be equal. Figure VI shows a different condition, and it is apparent from the figure that the reaction at the right-hand end of the beam will be greater than that at the left-hand end. In other words, if this beam is being carried by two men, the man holding the

right-hand end would have a heavier load to carry than the man holding the left-hand end. For engineering purposes it is absolutely necessary to determine accurately just how much of the load is supported at each end, and in all calculations where concentrated loads or unsymmetric uniform loads are involved the first step is the determination of the reaction. Here again the method employed involves the use of moments. In the example before, in which we determined the thickness of the wood plank, the centre of the moment was taken as directly under the centre of the con-

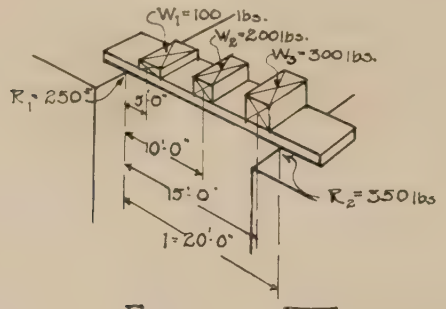


FIGURE VII

centrated load (see *a*, Figure IV). When it is necessary to determine the exact loads at the points of support, then the centres of the moments are taken at either point of support. Suppose, as in Figure VI, it is necessary to determine the load at the right-hand end of the beam. Then the centre of moments is taken at the *left-hand* end of the beam. The moment caused by the load W around the point R—left-hand support—will be equal to the force times the distance from this point. The force is W, the distance x, as shown in the figure. The moment then equals Wx.

An investigation of Figure VI would show that if the beam were not supported at R_2 this moment (Wx) would cause the beam to revolve around the point R_1. Actually, the beam remains stationary and this is due to the fact that at R_2 an upward load is applied, which, multiplied by the distance (l) will produce a moment equal and opposite to Wx. An equation might be written as follows: $Wx = R_2 l$. l is usually known, as this is the span of the beam; W and x are also usually known, as these are the actual conditions of the loading. The load of a brick wall weighing 1000 pounds might be imposed upon a beam ten feet from the left support. The span of the beam might be 15 feet. The unknown quantity would then be R_2, and by substituting in the formula above this could be determined.

$$Wx = R_2 l.$$
Substituting: $$1000 \text{ lbs.} \times 10 = R_2 \times 15$$
$$10{,}000 = 15R_2$$
$$666.6 = R_2.$$

In order to determine the load at R_1, a reverse process is necessary. The centre of the moment is then taken around the *right* support (R_2) and x becomes 5 feet. Then, by substituting in the formula, the equation becomes:

$$Wx = R_1 l.$$
Substituting: $$1000 \text{ lbs.} \times 5 = R_1 \times 15$$
$$5000 = 15R_1$$
$$333.3 = R_1.$$

This last equation is very seldom used except as a check, for it can be seen that if R_1 is added to R_2 the sum will equal 1000 pounds, which is equal to the load (W). It is only necessary, therefore, when R_2 is determined, to subtract this sum from the load and the answer will be equal to R_1. This is apparent if one should consider that the load (W) is carried on a plank between two men. The two men will not carry any more between them than the actual load on the plank. One may carry more than the other, but the total upward pressure exerted by both men will be no greater and no less than the downward load.

The problems given so far have been extremely simple, but they could be expanded in such a manner as to present many complications.

In Figure VII several loads are shown designated as W_1 (100 lbs.), W_2 (200 lbs.), W_3 (300 lbs.), at distances of five, ten, and fifteen feet from R_1. The span is given as twenty feet. The method of determining R_2, then, is as follows:

$$\begin{array}{rr} 100 \times 5 = & 500 \\ 200 \times 10 = & 2000 \\ 300 \times 15 = & 4500 \\ \hline 600 & 7000 \end{array}$$

Total moment around R_1 is 7000 foot-pounds.

This must equal the moment caused by R_2 around R_1, and the formula $R_2 \times l = 7000$ foot-pounds can be used. l is known as the span, which is 20 feet. The only unknown quantity will be R_2, which can be found by dividing 7000 by 20, which will give 350 pounds. This is the load at the right-hand support. The load at the left-hand support can be found by simply subtracting 350 pounds from 600 pounds—the total load—and the answer will be 250 pounds. This can be checked by reversing the moments as given in the first example. The calculation is given below:

$$\begin{array}{rr} 300 \times 5 = & 1500 \\ 200 \times 10 = & 2000 \\ 100 \times 15 = & 1500 \\ \hline & 5000 \\ 5000 \div 20 = & 250 \end{array}$$

These examples are given simply to illustrate what is ment by the term "moment." It may seem that the author is spending a considerable amount of time on this particular subject, but the understanding of moments and what they measure formulates a basis for all engineering calculations. For this reason the author has gone into the subject at length.

Competition for the Remodelling of a New York City Tenement Block

Under the Auspices of the Joint Legislative Committee on Housing and the Reconstruction Commission of the State of New York

PROBLEM

The remodelling of a characteristic old tenement block in the city of New York, so as to make it a decent place to live in. The object of the competition is twofold: first, to find the best method of improving living conditions in the old-law tenements without entirely destroying the buildings; second, to find a plan of remodelling that will encourage such alterations by the demonstration of its economic wisdom and the value that will come from the improvement. The relation of costs to results obtained will be a predominating factor in determining the judgment.

The purpose of the competition is to find solutions that will be applicable not only to the block which is the subject of the study but also to similar blocks throughout the city. It is a competition of ideas as well as design.

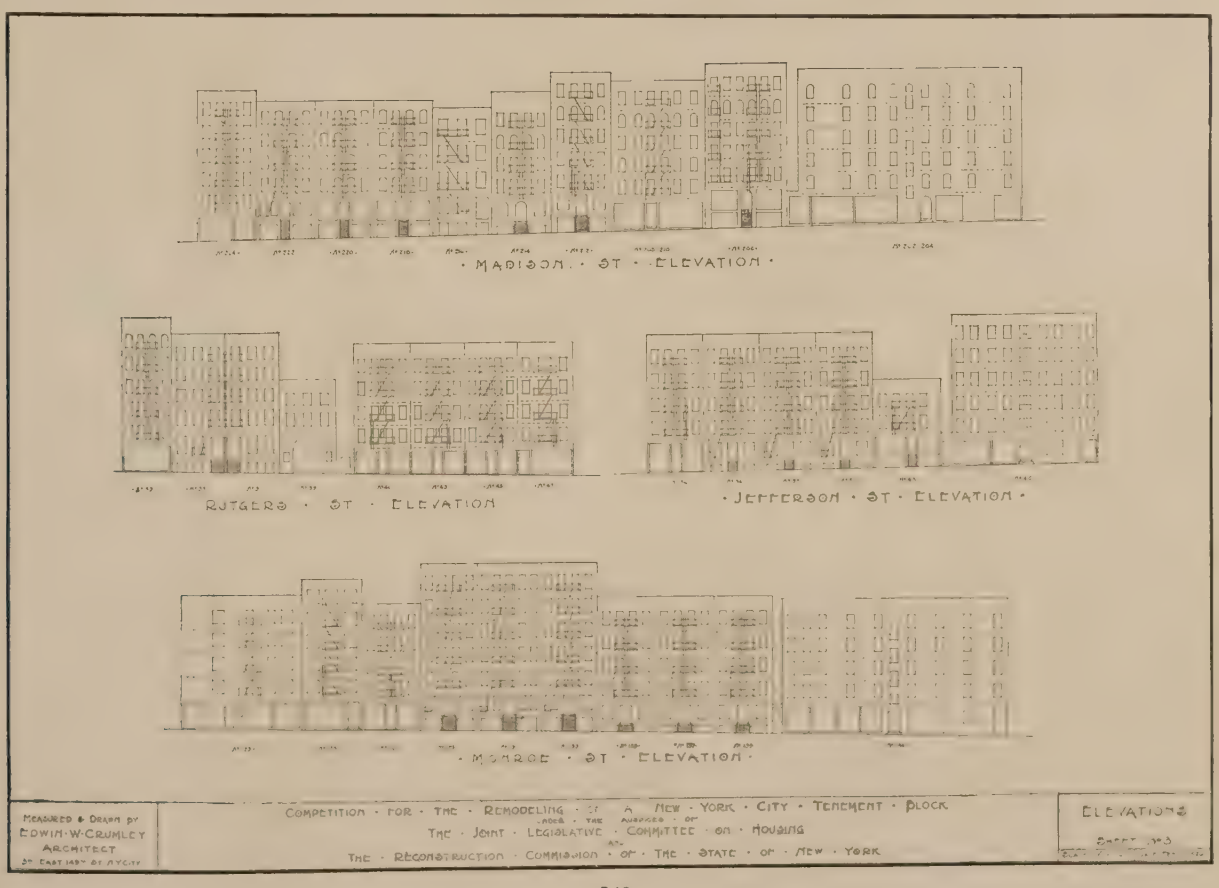
THE remodelling of one house in a bad environment is of little value. The improvement of a group of tenements is of real value. But the solution of the problem of the block as a whole would be of the maximum value to the tenants and owners of each house, to the neighborhood and to the community as a whole. Competitors may, however, decide what size units, what type and size of tenement, apartments, rooms, courts, and yards will give the proper environment for decent living and at the same time the most practical result as to plan, management, and financing. These should not fall below the standard of the Tenement House Law in regard to sanitation, lighting, ventilation, and safety. However, the competitor should be guided by the spirit, not the letter, of the law.

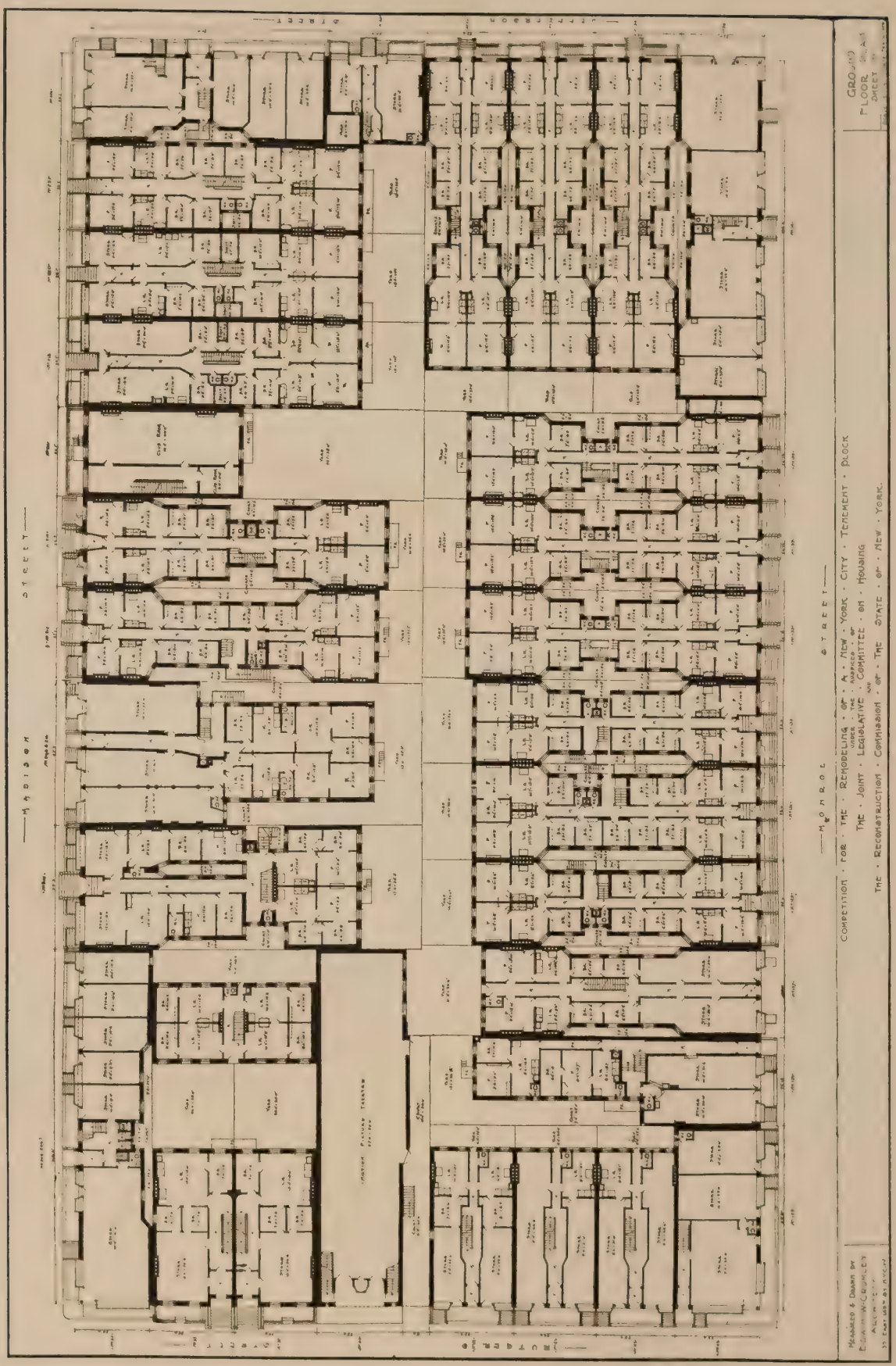
For the purpose of this study, the block bounded by Rutgers, Madison, Jefferson, and Monroe Streets, on the lower east side of Manhattan, has been chosen. Living conditions in this block are not the worst in the city. Conditions here are characteristic of those to be found in hundreds of other blocks throughout New York.

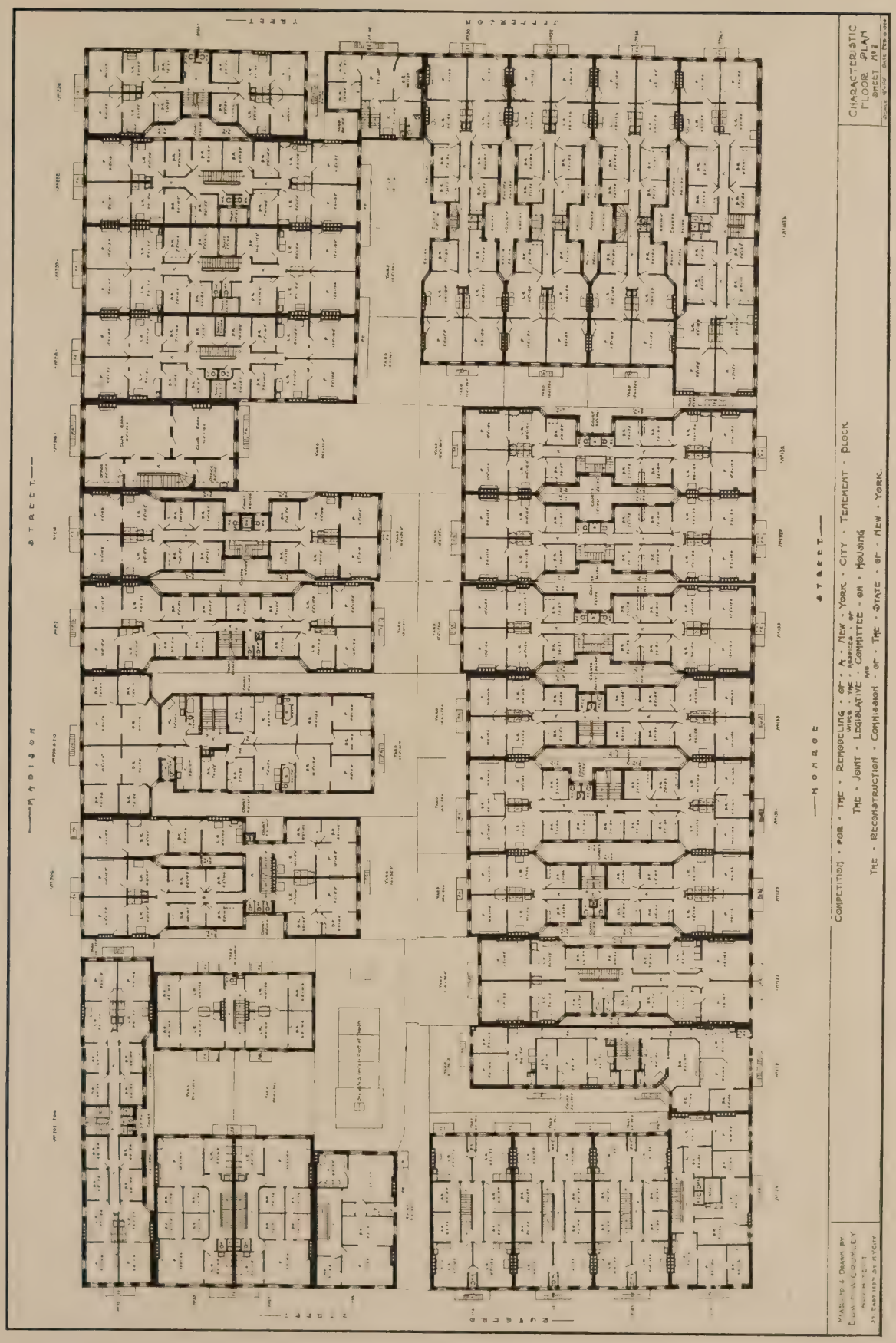
Drawings Supplied to Competitors.—The following drawings are supplied to competitors:

Two plans of the block, one of the ground floor, the other of a characteristic floor of apartments and the elevations on the four street fronts. The plans are drawn at the scale of $\frac{1}{8}$ inch equals 1 foot, the elevations at the scale of $\frac{1}{16}$ inch equals 1 foot. They show all walls, windows, doors, plumbing fixtures. They were made from careful measurements taken at the buildings during the last few months. They show the present actual conditions. The characteristic floor plan represents in most cases the top

(*Continued on page* 152.)




Madison Street
Monroe Street
COMPETITION · FOR · THE · REMODELING · OF · A · NEW · YORK · CITY · TENEMENT · BLOCK
UNDER · THE · AUSPICES · OF
THE · JOINT · LEGISLATIVE · COMMITTEE · ON · HOUSING
AND
THE · RECONSTRUCTION · COMMISSION · OF · THE · STATE · OF · NEW · YORK.
GROUND FLOOR PLAN
SHEET


CHARACTERISTIC FLOOR PLAN
SHEET No 2
COMPETITION · FOR · THE · REMODELING · OF · A · NEW · YORK · CITY · TENEMENT · BLOCK
THE · JOINT · LEGISLATIVE · COMMITTEE · ON · HOUSING
THE · RECONSTRUCTION · COMMISSION · OF · THE · STATE · OF · NEW · YORK.
MADISON STREET
MONROE STREET
JEFFERSON STREET
YARDS

(*Continued from page 149.*)

story. Conditions on other floors, excepting the first floor, are similar, if not identical. All competitors should inspect the block which is the subject of this study. Detailed information in regard to the various buildings will be found in addenda No. 1 at the end of the programme.

Drawings Required.—The following two drawings are required: A plan of the first floor and a plan of a characteristic floor, both after the proposed alterations have been made. These are to be drawn to the same scale as the plans supplied to competitors (⅛ inch equals 1 foot). All walls are to be outlined and all plumbing fixtures, stairs, fire-escapes, dumb-waiters, etc., are to be drawn in solid black-ink lines. All old walls which are preserved are to be filled in solid with black ink and all new walls are to be hatched with black-ink lines. Old walls which are to be destroyed shall not be indicated. No rendering of washes, either colored, black, or gray, and no use of diluted-ink lines will be permitted.

These two drawings, which are *the only drawings required*, will be the same size, have the same borders, and the same title as the two plans supplied to competitors. They will be (1) on white paper, (2) on tracing-paper mounted on cardboard, or (3) on tracing-linen.

Additional Drawing.—One and only one other drawing may be submitted at the discretion of the competitor. It will be the same size, have the same border and the same title as sheet 3 (elevations) supplied to competitors. It shall consist of a bird's-eye view of the whole or part of the development. The purpose of this drawing is to illustrate the competitor's scheme in as far as it cannot be expressed in plans. It will be judged on the merit of the idea, not on the merit of the execution of the drawing. It must be drawn in solid black lines without rendering of washes of any kind and presented on the same type of paper or linen as that used for the plans.

No other drawings will be permitted.

Drawings may be mounted on cardboard of the same size as drawings, in which case they must be delivered flat, or they may be rolled. They must not be creased or folded. They must be in condition and of such character as to permit their reproduction.

Description Required.—In addition to the drawing each competitor is *required* to submit a description. This should be concise and as short as the proper treatment of the subject will permit. It should contain at least the following:

(1) An explanation of the advantage of his solution from the point of view of the tenants, owners, the community, and the State.

(2) The proposed methods of carrying out the alteration—in small or large units, by individual owners, groups of owners, assistance of the local community, city, or State.

(3) A brief description of materials, type of lighting, plumbing, heating, to be used in alteration.

(4) Any proposed scheme of management. This includes care of houses, heating, lighting, rentals, as well as any common facilities for the use of more than one family or one house.

(5) Comparisons of existing and altered block. (*a*) Number of apartments. (*b*) Number of rooms. (*c*) Conveniences. (*d*) Sanitation and ventilation. (*e*) Rental values.

Marking Drawings and Description.—Drawings and description are to be marked with an emblem.

The description is to be placed in a sealed envelope marked on the outside with the same emblem.

These shall be accompanied by a sealed opaque envelope containing a card on which shall be the name and address of the competitor or competitors. The exterior of the envelope shall be marked with the same emblem.

Date of Closing of Competition.—All drawings and descriptions must be delivered at Room 302, Hall of Records, New York City, at or before 1 o'clock on June 15, 1920.

To Whom Competition Is Open.—The competition is open to any person or persons.

Prizes.—Two prizes of $1,000 each; four prizes of $500 each; four prizes of $250 each.

The jury may decline to award any or all prizes, in case it decides that drawings submitted do not fulfil the conditions of the competition or do not warrant the awards.

Publication of Drawings.—The jury shall have the right of publishing or exhibiting any drawing or description that may be submitted.

Jury.—The judges of the competition will be the following: Mr. Allan Robinson, Mr. Alfred E. Marling, Mr. Edgar A. Levy, Hon. Frank Mann, Tenement House Commissioner, Mr. Clarence S. Stein, Senator Charles C. Lockwood, Senator John J. Dunnigan, Mr. Andrew J. Thomas, Mr. Burt Fenner, Mr. Robert D. Kohn, Miss Lillian Wald, Mr. Alexander M. Bing.

Reaching the Architect by Advertising

By Stowe Phelps, A.I.A.

Introductory.—This article is written primarily to tell the advertiser how to reach the architect with his advertising, for that is presumably what he is trying to do when he sends him catalogues, samples, folders, etc., all of which have cost considerable money.

No one wants to waste money in his business, so why waste so much in advertising, which is part of his business?

In my opinion, about 1 per cent, or possibly 2 per cent, of the advertising that goes to architects is in good and effective form, about 25 per cent is fairly good, and the rest varies from that to nearly zero as regards its value.

The following suggestions are offered only as general principles, of necessity, and cannot apply to all cases, for the advertising of a copper nail will naturally be different from a line of hardware or plumbing fixtures.

The amount of money allotted to advertising will naturally govern the form of advertising, but if proper care and thought are given a great deal can be accomplished with a small outlay; certainly a great deal more than is often accomplished with a large expenditure.

Modifications also may have to be made to reach the general public, but this article is dealing only with reaching the architect.

Advertising for magazines is quite a different proposition, and will be mentioned below under a separate heading.

The word catalogue will be used in this article to include all forms of advertising matter such as pamphlets, folders, brochures, monographs, reports, etc.

Size.—The first thing to decide is the size, which, in most cases, should not be larger than the standard com-

mercial letter-paper size (about 8½ x 11 inches), whether in book form, pamphlet, or folder. If in folder form, do not get it too small, as it is easily mislaid or lost. A very convenient size is that of the ordinary book, about 5 x 7½ inches or 5½ x 8 inches.

The size of all advertising of a firm, company, individual, etc., should always be the same. This refers to the area of the page and not to the thickness or number of pages.

Binding.—If the thickness of the catalogue approaches the size of a book, it would be well to consider the advisability of binding it in boards, as such a binding will last longer than a paper binding, though in most cases a heavy paper binding is all that is necessary.

Serial Advertising.—When it is considered advantageous to send out advertising matter in serial issues, or in separate folders, at various times, such advertising matter should be of the same size, each separate issue bound up (and not folded), and then punched so that they can all be bound together into one volume as fast as received.

Some firms issue binders to hold their various issues, which is a very good idea. Such a binder should have the name of the firm and the name of the article advertised, trade-mark, etc., on the back, if possible.

Color.—The color or colors of the cover of the catalogue should always be the same.

If colored ink is used for the printing, always keep the same color.

If more than one color is used, always keep the same combination of colors.

Can you imagine Woolworth or the United Cigar Stores Company or Childs' Restaurants painting the outside of their stores anything but their well-known colors?

Trade-Marks, etc.—Adopt a distinctive trade-mark, monogram, or device, and put it prominently on the outside of the cover where it will easily catch the eye; also on the back edge of the catalogue if there is room.

The device of the United Cigar Stores is universally known and recognized.

The name of the article, if it has a name, should be *entirely* different from all names of similar articles and short and easy to remember.

Slogans.—Get a good slogan if possible and display it prominently with the trade-mark or device.

A few years ago it was difficult to say "Good morning" to a friend without adding: "Have you used Pears' soap?"

Names and Addresses.—The article advertised and the name of the advertiser together with the address should be plainly printed *on the cover*, and especially so if no trade-mark or device is being featured.

If the catalogue is thick enough, be sure and print your name on the back edge so it will be readily seen when standing on the shelf; also put on the name of the article advertised, such as "Smith & Jones, Paints & Varnishes," or "Commonwealth" Ranges, etc.

Numbering Catalogues.—Catalogues should be given a serial number or letter.

It is also advisable to put on the date of issue. Any possible disadvantages are more than outweighed by the advantages.

Also, this makes it easy to discard the older edition, thereby oftentimes avoiding mistakes.

Size of Type.—The size of type in the body of the printed matter should be large enough to be easily read by the average person.

This applies to all the essential or important information and statements.

Footnotes, explanations, and other unessential matter can go in smaller type.

Arrangement of Printed Matter.—This is of the utmost importance and will, of course, vary greatly with the article which is being pushed into the limelight.

The general principles of arrangement are as follows: All information contained in the catalogue should be divided into subjects and each subject into as many paragraphs as necessary.

Every subject (and every paragraph, if possible) should have a heading, title, subheading, etc., printed in bold-face type or in such other manner as to easily attract attention and catch the eye, so that it will not be necessary to read through a paragraph to find out what it is about.

Information can be divided into such subjects as "Construction," "Advantages," "Points of Superiority," "Cost," "Covering Capacity," "Uses," "What It Does," "How Used," "Architects Who Have Specified It," "Satisfied Owners," "Prominent Buildings Where Used," "Guarantee," and (most important of all, perhaps) "Specifications."

Illustrations, diagrams, etc., are always good, as are also tables of weights, sizes, capacities, and other information which will interest the architect and give him information he wants without writing or telephoning for it.

Many architects come from Missouri.

Points of Superiority.—The points of superiority, or why the advertised article is better than similar articles, is a subject that is seldom developed at all, and in fact is oftentimes entirely omitted.

Some advertisers seem to shy at this idea on the ground that they are knocking their competitors, but there is no reason for this. If your product is superior, don't hesitate to say so, but also don't fail to state *why* it is superior.

Guarantees.—There is scarcely a word in the English language that ought to mean so much and in reality means so little as "Guarantee."

It is probably safe to say that not 1 per cent of the "Guarantees" amounts to a row of pins from the standpoint of the architect or of the owner, but perhaps the architect and the owner are expecting too much.

One common form is, that a manufactured article is guaranteed to be perfect, and that any defective parts will be replaced free of cost. This means that the manufacturer will furnish free of cost a new part, but the owner has to pay the cost of replacing, so it often happens that while it may cost the manufacturer a dollar or two, it may cost the owner fifty or a hundred times as much for replacement.

Under these conditions, what is the real value of the guarantee? Virtually nothing. A real guarantee would include the cost of replacement.

The point is this: If the manufacturer really has faith in the article he is selling, he ought to stand back of it with a real guarantee.

Specifications.—Specifications are extremely important and should *always* be included where possible.

They should be worded in such a way that they can be copied into the architect's specifications and *not* in an indefinite form (as is often done). For example: "In order to get the best results, Jones Paints should always be specified."

Write the specifications, if possible, so that they can be copied into the architect's specifications, and be sure that they are explicit and complete, so that when the architect has followed your information there will be no mistakes, and nothing left out which will cause trouble and very probably an extra.

A method, easy for the architect and therefore excellent for the advertiser, is to publish a complete specification

and then explain that all the architect has to do is to say: "Such and such work is to be done according to 'Jones Method No. L,' or 'Smith's Standard Specification B,'" which saves copying a long specification.

Give specifications to cover every possible case.

If the material cannot be used under certain conditions or in connection with certain other materials, attention should be called to the fact.

If certain preparation by other trades is required, such requirements should be carefully and minutely noted.

Samples.—While the question of samples for the architect does not come properly within the scope of this article, a word may be said in regard to them, as in many cases they are closely related to the printed advertising.

Every sample should have attached to it *securely* a label or tag giving the name and address of the manufacturer; also address of the branch office or name and address of the agent to whom inquiries should be directed, if there is an agent nearer to the architect than the home office.

The name of the article should be accurately and completely given, the date, also as much complete information as possible, including a specification if there is room.

Many samples left in architects' offices are not properly labelled, with the result that they fail in their mission and are often thrown away because the architect does not know what they are or from whom they came.

Telephone Numbers.—If there is an agent in a city, the name of the concern should be listed in the local telephone directory, and not the name of the agent.

If the John Doe Paint Company of Chicago, for instance, has an agent in New York by the name of Richard Roe, it is unlikely that the architect will remember Richard Roe, by name, and the extra cost of listing the John Doe Paint Company will be money well spent.

Telephone numbers should also be put on letter-heads, cards of representatives, catalogues, etc., so as to make everything as easy as possible for the architect.

Magazine Advertising.—Magazine advertising is very important and must be carefully planned and studied to get results.

It is also a difficult problem, as the space is limited in comparison with a catalogue, and the copy must appeal to the layman as well as to the architect.

With these limitations and conditions the subject must be presented on principles entirely different from those described above.

The form of the advertisement will vary greatly, depending whether or not it is to appear in an architectural magazine, where it will be read by the architect as well as the man on the street, or in the non-technical magazine or paper, where no attempt can be made to reach the architect as such.

Considering first the architectural magazine; this is principally read by the architect, so the advertisement must be prepared primarily for him.

The copy should undoubtedly contain an illustration.

If the subject is difficult or uninteresting to illustrate (such as a brand of cement or iron pipe or a system of waterproofing), the best thing to do is to show a picture of some important or attractive building where the material has been used.

This will not only catch the eye but will show that some architect specified it in this building, and it follows that the name of the building and the names and addresses of the owner, architect, and contractor should be given.

It would be well to add a short list of about half a dozen buildings with the names and addresses of owners, architects, and builders, all of which will show the company the advertised article keeps. The persons' names can also be readily referred to if desired.

If the space will permit, further information should be given; selecting, of course, the most important points.

A short statement of the "Uses," "Costs," "Points of Superiority," etc., can well be included, for such information is valuable.

Provided the "Specification" is not too long to insert, put it in by all means.

When it comes to the *non-technical* or *popular magazine*, it is quite a different story, for here the appeal is to be made to the layman, whose point of view is very different probably from that of the architect.

In this case the illustration is still very important, but its character can perhaps be changed with advantage.

A thirty-story office-building to show where a particular make of radiator was used will catch the eye of the architect, but for the general public (which means both men and women) a little "human interest stuff" (as the news reporters call it) should be introduced and a picture of the happy family, father, mother, and the curly headed children, all basking in the warmth of the above-mentioned radiator, with a raging blizzard visible through the window, will be much more effective than the office-building.

After this, if space permits, put in general information about "Uses," "Costs," "Points of Superiority," etc., but worded to mean something to the average intellect.

In Conclusion.—The above remarks may be summed up as follows:

Make things as complete and explicit and easy for the architect as possible by making your advertising in the architectural magazines clear and definite and attractive and your catalogues of convenient size, easily recognizable, full of exact information well arranged. In this way you will reach the architect and then—let nature take its course.

Modern Building Superintendence

By David B. Emerson

CHAPTER IX

BANK VAULTS AND FIXTURES

WHILE the work which has been described in the preceding chapters was going on, the work of installing the bank vaults, counters, and screens was progressing rapidly. The concrete foundations and walls of the safe-deposit and bank vaults was poured with the other concrete. The vaults were designed by a vault engineer, and the construction was superintended by him, but in his absence we were intrusted with the supervision of the work, and acted in concert with him at all times. The walls, floors, and roof of the vaults were constructed of concrete, with

rail reinforcement, as described in Chapter II. It was intended to render the vault as nearly fire, burglar, and mob proof as was possible.

In the larger cities the danger from burglars has been reduced to a minimum by efficient police protection and private watch systems. Also, the famous old-time cracksmen of the "Shang" Draper and "Jimmie" Hope type have been entirely supplanted by the "yegg," who preys upon the small-town banks, so that the greatest danger which may have to be combated in any of the larger cities is the one of mob violence, more than that of the night prowlers, so that the vaults must be made to withstand all manner of onslaughts by high explosives, drilling, the oxyacetylene blast, blau-gas cutter burner, or the electric arc, which may any one or more be used. And, although the burglar risk is reduced greatly, still "eternal vigilance is the price of safety"; and burglaries still continue to occur in all of the larger cities, and corporations and firms handling large sums of money have their safes blown open, or ripped open, quite regularly between Saturday night and Monday morning, so bank equipment must still be calculated to withstand the attack of burglars as well as that of the mob.

The vaults were lined on all four sides and the top and bottom with plates four inches thick, made up of layers of electric-furnace abrasive grains, combined with iron, which had been proven to be as nearly drill and cutter burner proof as any material could be, having a greater resistance than laminated plates, or any other form of lining at present known. The doors were single straight flange doors, thirty inches thick. The joints between the door and the jambs were carefully and accurately ground, so as to make a positive mechanical seal. The doors were built up of a composite construction. The outer shell was of cast low steel, inside of which was a concrete section, which was reinforced with jail rods, which were saw-proof and file-proof. The bars were set both horizontally and vertically, four rows of bars being used. Inside of this was a six-inch tool and cutter burner, resisting plate, of the same material as was used for the lining of the vaults. This plate had a one-inch layer of one-half inch abrasive grains on each face, and a two-inch layer of one-inch grains through the middle. On the inside of this section was a facing of laminated steel construction on which was mounted the cast steel bolt frame, the bolt mechanism, and the time locks, which were located in a centre drum, housed in a steel case, and having a cover door. The doors were hung on crane hinges, with wheel-operated-pressure mechanism.

The combination locks and the bolt-throwing mechanism was located on the jambs of the doors. All of the mechanism, bolts, etc., was draw-filed steel. The combination-lock dial was set on the pressure mechanism housing on the door-jamb, and had a steel cylinder set anglewise and provided with an oval glass window, set eight inches from the illuminated stationary dial, provided with two revolving pointers, each of which was connected with the combination locks.

Lowering platforms with controlling hand-wheels were placed in front of the doors, so that a level passage could be had into the vaults. The vaults were also provided with emergency doors of a smaller size, but of equally efficient construction, which were to be used in case of lock-ins or other emergencies, but in no way affecting the security of the vaults. The bank vault was fitted up with steel security and coin lockers, with steel doors fitted with two combination locks. The safe-deposit vault was fitted up with safe-deposit boxes, the minimum size having a unit width of five and one-half inches and an outside depth of twenty-six inches.

The boxes were fitted with locks which were provided with a guard key, which was in charge of the custodian, and was common to all of the locks in a series; each lock also had its individual key, which fitted only its own lock, and differed from every other key in the series, these keys being known as the change keys. Before the change key could be inserted, or used in its lock, the guard mechanism had to be unlocked by means of the guard key in charge of the custodian. The safe-deposit vault was provided with a bronze day gate, which had a latch lock which could be opened only by means of a key.

A bed of cement mortar one inch thick, trowel-smoothed, was laid over the floors of the vaults. On this was laid a finished floor of cork tile six inches by twelve inches, one-half inch thick. On account of its resilient quality, and its comparative noiselessness, this makes an admirable floor for vaults. The vaults were wired for lighting, telephone, and electric fans, all of the wiring being permanent and built into the walls, floor, and ceiling as the vaults were being constructed.

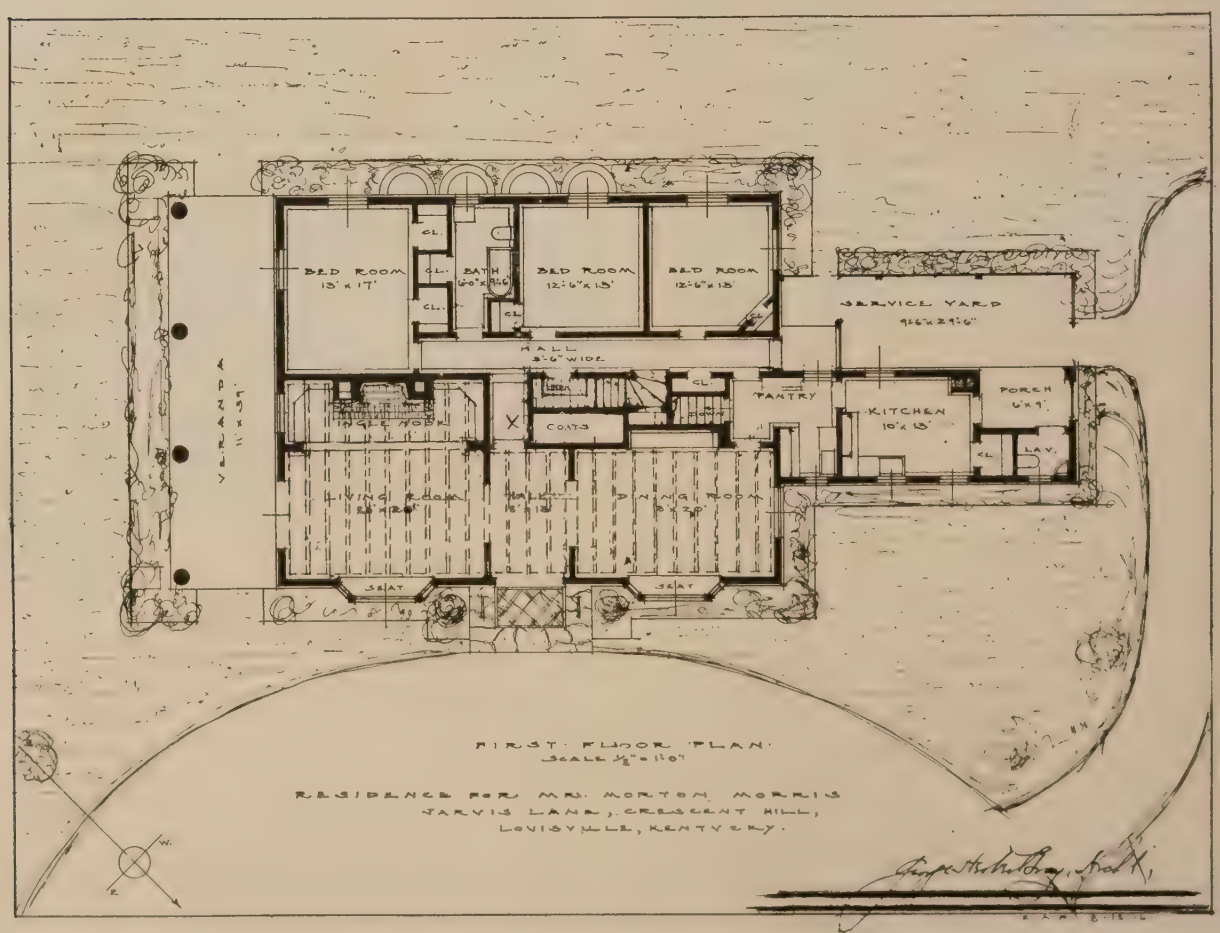
Both the public and the intercommunicating telephones were connected with the interior of the vaults, so that direct communication could be had with the outside by any one locked in. Safe-deposit vault had a switch in the vestibule, with momentary contact button, actuating the automatic switch; also, the vaults were provided with receptacles for attaching portable lights, and they had continuous burning night-lights for emergencies. As an extra precaution, the vaults were wired for an electric alarm system. The four side-walls, the floors, and the roofs of the vaults were surrounded with lead-covered cables, spaced four inches apart, and run both longitudinally and transversely, and terminating in a junction box, which connected with a conduit which ran to the telephone service, to be connected with the police signal system.

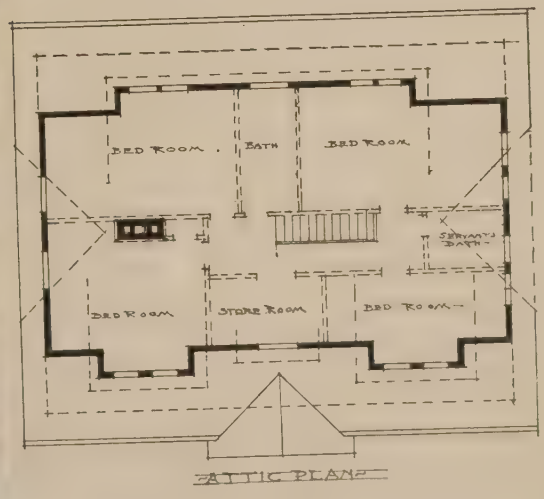
A system of panelled doors, similarly wired, were installed on either side of the vault doors, closing over them, and protecting them. This system was on a closed circuit and the breaking or cutting of any one of the wires would give an alarm. The wiring was covered over with marble panelling, which was set so that it was easily accessible in case of repairs, which might be made necessary by any break in the system.

The counter fronts were built up to the level of the counter tops with walls of hollow tile four inches thick. In these walls were set steel angle standards, which were securely bolted to the floors, and which formed a rigid support for the bronze screenwork, which was above the counters. The outside face of the counters was faced up with marble, with moulded base course and cap mould, all anchored back to the tile walls by means of brass-wire anchors. The marble which was used above the base was Italian Pavanozza. On account of the extremely fragile character of this marble, all of the slabs were backed up with slabs of hard, sound, cheap marble, the backing and the face being set together with plaster of Paris, which insured a perfect adhesion between the two slabs. We examined all pieces of marble to see that no fractured pieces were used, and that none of the pieces were dowelled along the line of a fracture, which is sometimes done with this marble.

The screenwork above the counter tops was of bronze and plate glass. The pilasters, cornice, frames, grills, and wickets at the various windows were of cast and wrought bronze. A continuous reflector which was set in a drawn bronze frame ran around the inner side of the cornice, forming the finish. The reflectors were carried along the tops

(*Continued on page* 158.)


BED ROOM 15' x 17'
BATH 6'-0" x 7'-6"
BED ROOM 12'-6" x 15'
BED ROOM 12'-6" x 15'
HALL 3'-6" WIDE
SERVICE YARD 9'-6" x 29'-6"
VERANDA 11' x 39'
SINGLE WORK
COATS
PANTRY
KITCHEN 10' x 15'
PORCH 6' x 9'
LAV.
LIVING ROOM 24' x 17'-6"
DINING ROOM 15' x 17'-6"
SEAT
SEAT
FIRST FLOOR PLAN.
SCALE 1/8" = 1'-0"
RESIDENCE FOR MRS. MORTON MORRIS
JARVIS LANE, CRESCENT HILL,
LOUISVILLE, KENTUCKY.


BED ROOM
BATH
BED ROOM
SERVANTS BATH
BED ROOM
STORE ROOM
BED ROOM
ATTIC PLAN

(*Continued from page* 155.)

of the partition screens, and formed a cornice over them, giving light to the desks on both sides. The backing of all the screenwork and the cap plates of all the partitions was number-sixteen-gauge cold-drawn bronze; all of the bronzework in the screens was the highest class architectural bronze. All of the ornamental work was cast from carefully modelled patterns; where five or more castings were to be made from the patterns, metal master patterns were used. These patterns were cast from the plastic models, and were then finished by hand-chasing. Where not more than four reproductions were to be made from a pattern, the moulds were made directly from the plastic model.

All of the castings were rechased from a chased master pattern. All of the exposed surfaces of the moulded and plain work had the fire skin removed by filing or grinding, and brought to a true surface and finished with a draw file ready for coloring. All of the bronzework was put together in a most approved manner, by means of concealed screws and rivets. All of the framing, blocking, reinforcements, screws, and connections were of bronze, or other non-rusting alloy, and where the bronzework was attached to the steel framing, it was bushed with bronze or copper, and the connections were made by means of bronze bolts and rivets. No work the face of which formed a finished surface was allowed to come in contact with the steel framing. All of the steel framing was painted two good coats of graphite paint before the bronzework was erected.

All of the glass used in the screens was a non-shattering glass, which was made up of two pieces of polished plate glass, with a sheet of celluloid between them and welded together under a high temperature and a tremendous pressure. This glass will not shatter or fly when struck by any ordinary missile, strong impacts merely causing a multitude of hairlike cracks, but no breaks or flying splinters. The glass was held in place by means of stops formed of rolled-bronze channels, held in place by means of oval-headed bronze machine-screws.

The tellers' cages were framed up of bronze tubing, one and one-half inches square at the angles and corners, with roof framing of three-eighths-inch by two-and-one-half-inch bronze bars; the panels were filled with one-and-one-half-inch mesh. The finishing of the bronzework was done by first cleaning it by dipping in a solution of sulphuric acid and water, then washing thoroughly, and oxidizing with a solution of sulphate of ammonia, and rubbing it down to an even color with pumice-stone, and finally given one coat of white wax, thinly and evenly brushed on.

The tops of all of the counters were formed of two-inch-thick slabs of structural glass, making a smooth, impervious surface. The space under the counters was filled in with drawers and lockers made up of furniture-stock sheet steel, finished in enamel. The drawers had slides with antifriction-bearing surfaces, and all of the cases were completely closed at the bottom with steel shelves to keep out mice and vermin. All of the desks, filing-cases, etc., were made up of sheet steel in the same manner. The dressing-rooms for the clerks and the officials were fitted up with steel wardrobes provided with hat-shelves, bronze coat-hooks, umbrella-holders, and drip-pans.

With the installation of the lighting fixtures, which were of bronze of an ornate character, the work of fitting up the banking-room was completed, except for the installing of the movable furniture and the rugs in the president's and directors' rooms, and the rooms for the women customers, which does not come in the construction, so need not be described.

Announcements

Roger C. M. Carl has opened an office for the practice of architecture at 1012 Murchesin Bank Building, Wilmington, Delaware, and would be pleased to receive manufacturers' samples and catalogues.

Lewis H. Bacon, architect, announces the removal of his office from 50 Bromfield Street to Rooms 521–522 Walker Building, 120 Boylston Street, Boston. Telephone changed to Beach 6768.

C. E. Schermerhorn, architect, member American Institute of Architects, 430 Walnut Street, Philadelphia, Pa., announces resumption of practice, having completed his services with Military Intelligence Section, Plant Protection Division, General Staff Corps, United States Army.

Rudolph E. Lee, A.I.A., of Clemson College, S. C., T. A. MacEwan, of Pittsburg, Pa., and A. R. Turnbull, of Charlotte, N. C., have opened an office at 1214 Realty Building, Charlotte, N. C., under the firm name of Lee, MacEwan and Turnbull, for the practice of architecture and engineering. A. R. Turnbull is the business manager of the firm, and they will be glad to receive manufacturers' samples and catalogues.

We note with regret the death, on March 31, of Mr. Louis M. Even, who was well known to the architectural profession as a sculptor and modeller. His marked skill and acknowledged ability, his devotion to his work, and his engaging personality had secured for him many friends among the architects.

Rayburn S. Webb, formerly of the firm of Parlow & Webb, architects, Cape Girardeau, Mo., announces the opening of an office for the general practice of architecture at Room 519 Himmelberger-Harrison Building, Cape Girardeau, Mo. Manufacturers' catalogues and samples are requested.

Mr. Ralph Mornington Weinrichter, F.A.S.L.A., landscape architect, of Rochester, N. Y., takes pleasure in announcing the opening of a New York office at No. 10 East 43d Street.

Fulton & Taylor and Paul T. Cahill desire to announce the formation of a new partnership, Fulton, Taylor & Cahill, architects, and the removal of their office after April 1, 1920, from 631 Hippodrome Building to 8120 Euclid Avenue, Cleveland, Ohio.

Messrs. Edward C. Van Leyen and Edward A. Schilling, architects, Henry J. Keough and Robert A. Reynolds, engineers, wish to announce that they have associated under the firm name of Van Leyen, Schilling, Keough and Reynolds for the purpose of supplying at the least cost complete service in architecture, engineering, and supervision, and to further announce the removal of their offices from the Union Trust Building to 556 Cass Avenue, Detroit, Mich.

C. P. H. Gilbert, architect, announces the removal of his offices to the Metropolitan Tower, 1 Madison Avenue, New York.

Frederick G. Frost, architect, 19 West 44th Street, has removed to 144 East 54th Street, New York.

Harry Leslie Walker, architect, announces the removal of his offices from 19 West 44th Street to 144 East 54th Street, New York City.

The death is announced of Miss Eliza Codd, architect, at Nantucket, Mass., on Easter Sunday, 1920.

A group of architects have rented the building at 27 East 40th Street, New York, which has been remodelled for architects' studios. The following architects have taken spaces in the building: Eugene J. Lang, Harry St. Clair Zogbaum, A. Wallace McCrea, Arthur Loomis Harmon, E. F. Murgatroyd, Wm. F. Dominick, and Donald P. Hart.

IMPORTANT COMBINATION OF TWO LARGE ENGINEERING AND CONSTRUCTION COMPANIES — WESTINGHOUSE, CHURCH, KERR & CO., INC., AND DWIGHT P. ROBINSON & CO., INC., ARE MERGED — NEW COMPANY TO BE CALLED DWIGHT P. ROBINSON & CO., INC.

Of general interest is the combination recently announced of the organizations of Westinghouse, Church, Kerr & Co., Inc., engineers and constructors, New York, and Dwight P. Robinson & Co., Inc., constructing and consulting engineers, of New York.

The new company will be called Dwight P. Robinson and Company, Inc., and will occupy executive offices at 61 Broadway, and engineering and designing offices in the Grand Central Palace, 125 East 46th Street, New York.

The Eleventh Annual Convention of the American Federation of Arts at the Metropolitan Museum of Art

A GOOD sign of progress in our land is the concrete evidence of the work of that live, hard-working art organization the American Federation of Arts, which holds its annual convention in New York at the invitation of the Metropolitan Museum of Art, which celebrates its own golden anniversary this year. For eleven years this national society, consisting of two hundred and twenty-four affiliated chapters in forty States, besides thousands of individual members, has been building up a reputation for solid service along lines of great value to the American people.

This year's convention, of which all sessions are public, will be held May 19 to 21. There will be two sessions May 19. In the morning President de Forest will deliver the opening address and reports of the secretary and treasurer will be heard. Vice-President Hutchinson will speak of the extension work of the Federation; Francis C. Jones will lead discussion on "Travelling Exhibitions," which constitute an important part of the Federation's work, and Allen Eaton, field secretary, will discuss the Federation's new venture under the slogan "Art in the Home," now applied to a group of exhibitions of prints and photographs for home decoration but later to be extended to other fields.

The Federation works for better art education, uniform art legislation, establishment of competent art commissions; it supplies art information and study courses. It has thrown its weight in favor of the rapidly growing movement toward industrial arts design worthy of the stamp "Made in the U. S. A."

To advance these many lines of usefulness the Federation counts upon the services of many public-spirited men and women. Its president is Robert W. de Forest, who is also president of the Metropolitan Museum of Art. Its first vice-president is Charles L. Hutchinson, who is president of the Chicago Art Institute; while Charles D. Norton, vice-president of the First National Bank in New York, is its treasurer. The board of directors includes men and women of like importance from a number of cities in various parts of the country, from St. Paul to Santa Fé, from San Francisco to Savannah.

Some of the things the Federation does: Sends out travelling exhibitions selected by experts. Circulates illustrated lectures by authoritative writers. Publishes a monthly illustrated magazine (*The American Magazine of Art*). Issues a yearly art directory (*The American Art Annual*). Conducts a campaign for better war memorials. Holds annual conventions. Serves as a national art clearing-house. Supplies art information, study courses, etc. Aids in establishing art commissions.

Floor of Armstrong's Cork Tile in the Portland Public Library, Portland, Ore.

For Silence and for Wear

SUCCESSFUL library floors must meet two main requirements: They must be quiet and they must be durable.

Now some materials are durable, but they are also hard and noisy. Others are quiet, but do not wear sufficiently well to be practicable. In Armstrong's Cork Tile, however, both of these qualities are developed to a marked degree.

Being made of cork, a substance composed of myriads of tiny air-cells, Armstrong's Cork Tile acts as a pneumatic cushion. It deadens the sound of footsteps almost completely. It has no grain, and does not crack or splinter. Neither does it crumble, scale or dust off when subjected to abrasion. Furthermore, cork is resilient; hence Armstrong's Cork Tile floors are remarkably comfortable and easy underfoot—a big point in their favor, too.

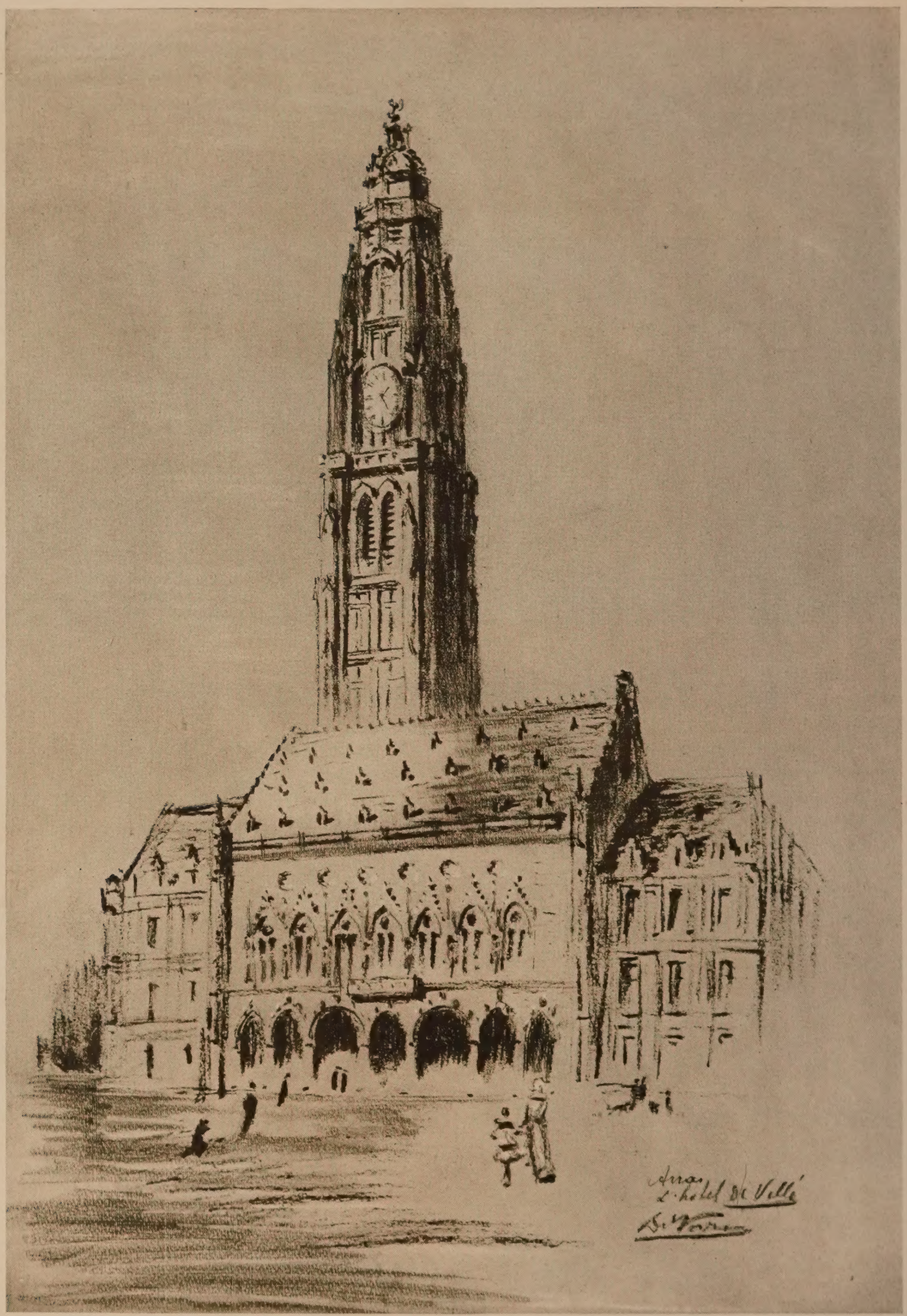
Silence and durability are not the only advantages offered in Armstrong's Cork Tile by any means. The many others are explained in the illustrated book, "The Ten-Point Cork Floor." Write and ask us to mail you a copy.

Armstrong Cork & Insulation Company 160 Twenty-fourth Street, Pittsburgh, Pa.

Also manufacturers of Nonpareil Cork Covering for cold pipes; Nonpareil High Pressure Covering for steam lines; Nonpareil Insulating Brick for boiler settings, etc.; Nonpareil Cork Machinery Isolation for deadening the noise of machines; Circle A Cork Brick for cold-storage room floors; and Linotile for floors in offices, residences, etc.

Armstrong's Cork Tile

TRADE (A) MARK



HÔTEL DE VILLE, ARRAS. *From a drawing by David Varon.*